

BALSAMINACEAE

凤仙花科 feng xian hua ke

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Herbs annual or perennial [rarely epiphytic or subshrubs]. Stems erect or procumbent, usually succulent, often rooting at lower nodes. Leaves simple, alternate, opposite, or verticillate, not stipulate, or sometimes with stipular glands at base of petiole, petiolate or sessile, pinnately veined, margin serrate to nearly entire, teeth often glandular-mucronate. Flowers bisexual, protandrous, zygomorphic, resupinate to through 180° in axillary or subterminal racemes or pseudo-umbellate inflorescences, or not pedunculate, fascicled or solitary. Sepals 3(or 5); lateral sepals free or connate, margins entire or serrate; lower sepal (lip) large, petaloid, usually navicular, funnellform, saccate, or cornute, tapering or abruptly constricted into a nectariferous spur broadly or narrowly filiform, straight, curved, incurved, or ± coiled, swollen at tip, or pointed, rarely 2-lobed, rarely without spur. Petals 5, free, upper petal (standard) flat or cucullate, small or large, often crested abaxially, lateral petals free or united in pairs (wing). Stamens 5, alternating with petals, connate or nearly so into a ring surrounding ovary and stigma, falling off in one piece before stigma ripens; filaments short, flat with a scalelike appendage inside; anthers 2-celled, connivent, opening by a slit or pore. Gynoecium 4- or 5-carpellate, syncarpous; ovary superior, 4- or 5-loculed, each locule with 2 to many anatropous ovules; style 1, very short or ± absent; stigmas 1–5. Fruit an indehiscent berry, or a 4- or 5-valved loculicidal fleshy capsule, usually dehiscing elastically. Seeds dispersed explosively from opening valves, without endosperm; testa smooth or tuberculate.

Two genera and more than 900 species: mainly in tropical and subtropical Africa, some species in temperate Asia, Europe, and North America; two genera and 228 species (187 endemic, two introduced) in China; three additional species (all endemic) are of uncertain placement.

All but one of the species in the family belong to *Impatiens*. The unispecific *Hydrocera* is confined to India and SE Asia.

Chen Yiling. 2001. Balsaminaceae. Fl. Reipubl. Popularis Sin. 47(2): ii–vii, 1–243.

- 1a. Lateral petals united in pairs; fruit a valvate, fleshy, explosive capsule 1. *Impatiens*
1b. Petals all free; fruit a fleshy, indehiscent pseudoberry 2. *Hydrocera*

1. IMPATIENS Linnaeus, Sp. Pl. 2: 937. 1753.

凤仙花属 feng xian hua shu

Balsamina Miller.

Morphological characters are the same as those of the family, except: lateral petals always united in pairs into lateral, united petals; fruit a fleshy, explosive capsule; seeds often dispersed elastically from valves when ripe.

More than 900 species: tropical and subtropical mountains of the E hemisphere, some species in temperate Asia, Europe, and North America; 227 species (187 endemic, two introduced) in China; three additional species (all endemic) of uncertain placement.

Impatiens balsamina (species no. 2) is widely cultivated as an ornamental and medicinal plant. Recently, *I. walleriana* J. D. Hooker (species no. 4) has become commonly cultivated, and *I. usambarensis* Grey-Wilson, native to Tanzania, has been introduced.

Taxonomically, *Impatiens* is a very difficult group. The stem is usually fleshy and succulent, making collected specimens difficult to dry and conserve. The texture of the sepals and petals is very delicate, extremely thin and hyaline. In dried specimens, all of the flower parts are often plicate and coalesced. Although it is difficult to separate and reconstruct the flower parts, determining the shapes and sizes of the sepals and petals, and apices of the anthers (i.e., obtuse or acute), is necessary for identification. To identify and describe every species exactly, we removed flowers from specimens, immersed them in water, and dissected them under a microscope to observe their flower and anther characters clearly. This process is not only time-consuming but also uncertain of success.

The following species were described from China but could not be treated here because no material was seen by the authors: *Impatiens huangyanensis* X. F. Jin & B. Y. Ding (Acta Phytotax. Sin. 40: 167. 2002), described from Zhejiang; also the following species all described from Yunnan: *I. armeniaca* S. H. Huang (Acta Bot. Yunnan. 25: 271. 2003), *I. austroyunnanensis* S. H. Huang (loc. cit.: 276), *I. daguanensis* S. H. Huang (loc. cit.: 273), *I. deqinensis* S. H. Huang (loc. cit.: 263), *I. lancisepala* S. H. Huang (loc. cit.: 277), *I. laojunshanensis* S. H. Huang (loc. cit.: 268), *I. latipetala* S. H. Huang (loc. cit.: 278), *I. longirostris* S. H. Huang (loc. cit.: 261), *I. malipoensis* S. H. Huang (loc. cit.: 269), *I. multiramea* S. H. Huang (loc. cit.: 280), *I. pianmaensis* S. H. Huang (loc. cit.: 267), *I. sabwinensis* S. H. Huang (loc. cit.: 263), *I. suijiangensis* S. H. Huang (loc. cit.: 274), *I. sunii* S. H. Huang (loc. cit.: 273), *I. wenshanensis* S. H. Huang (loc. cit.: 267), *I. xishuangbannaensis* S. H. Huang (loc. cit.: 271. 2003 [“*bannaensis*,” corrected by S. H. Huang et al., Acta Bot. Yunnan. 26: 574. 2004]), *I. yongshanensis* S. H. Huang (loc. cit.: 274), *I. yui* S. H. Huang (loc. cit.: 266), and *I. zixishanensis* S. H. Huang (loc. cit.: 276).

- 1a. Capsule short, ellipsoid, middle turgid, both ends contracted and rostrate; seeds rounded.
2a. Inflorescences sessile; flowers solitary or 2- or 3-fascicled in leaf axils.

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- 3a. Leaves opposite, sessile or subsessile, linear or linear-lanceolate, base rounded or subcordate, margin remotely serrate; capsule glabrous 1. *I. chinensis*
- 3b. Leaves alternate, petiolate, lanceolate to ovate, base cuneate, margin sharply serrate to crenate or nearly entire; capsule tomentose or densely pubescent.
- 4a. Leaf blade lanceolate or narrowly elliptic, base with few pairs of black glands, margin sharply serrate, glabrous or pubescent; capsules and flowers densely pubescent (cultivated) 2. *I. balsamina*
- 4b. Leaf blade ovate or ovate-lanceolate, basal margin often long ciliate, inconspicuously crenate or nearly entire; petioles, both surfaces of leaves, and flowers with multicellular hairs; capsule tomentose 3. *I. aureliana*
- 2b. Inflorescences pedunculate, 2- or 3-5-flowered, subumbellate or racemose, rarely solitary flowers.
- 5a. Leaves alternate, broadly elliptic or ovate, glabrous; flowers 2, rarely 3-5, red, crimson-red, pink, purple-red, purplish violet, or white; bracts linear-lanceolate or subulate (cultivated) 4. *I. walleriana*
- 5b. Leaves opposite, alternate, or subverticillate, ovate, ovate-lanceolate, or elliptic-lanceolate, hairy or only veins sparsely pilose; flowers 1 or 2, or 4-8 in subumbels or dense racemes, purple, pink-purple, or golden-yellow; bracts linear or ovate-lanceolate.
- 6a. Leaves opposite or alternate, ovate or ovate-lanceolate, adaxially appressed pilose, abaxially pubescent on veins; flowers 4-8 in subumbels or dense racemes, pink-purple, small; bracts linear, ciliate 5. *I. bracteata*
- 6b. Leaves alternate or subverticillate in upper part, lanceolate or elliptic-lanceolate, adaxially veins slightly scabrid, abaxially glabrous; flowers 1 or 2, golden-yellow, throat purple spotted, 2-2.5 cm; bracts ovate-lanceolate, setose 6. *I. xanthina*
- 1b. Capsule elongate, fusiform, clavate, or linear-cylindric; seeds oblong or obovoid.
- 7a. Distal lobes of lateral united petals connate or coadnate into lamella or at least auricle connate; capsule fusiform or clavate.
- 8a. Lateral sepals 2; flowers yellow, white, or pink, spotted.
- 9a. Inflorescences not pedunculate, 1-flowered; pedicel without bracts; flowers white or pink, orange spotted 10. *I. morsei*
- 9b. Inflorescences shortly pedunculate, 1-flowered, rarely 2-flowered; pedicel with small bracts at base; flowers yellowish, purple spotted 11. *I. hainanensis*
- 8b. Lateral sepals 4; flowers pink-purple.
- 10a. Inflorescences not pedunculate, 1-flowered; pedicel without bracts; leaf margin crenate-serrate 9. *I. musyana*
- 10b. Inflorescence very shortly pedunculate, 2-flowered, rarely 1-flowered; pedicel with persistent bracts at base; leaf margin serrulate.
- 11a. Lateral united petals not clawed, basal lobes pyriform, distal lobes dolabriform (axe-shaped), lower sepal shortly saccate or cup-shaped, with an incurved spur; leaf blade 2.5-3.5 cm wide, lateral veins 8-15 pairs 7. *I. obesa*
- 11b. Lateral united petals clawed, basal lobes orbicular, distal lobes suborbicular, lower sepal funnelliform, with a 2-lobed, short spur; leaf blade 5-7 cm wide, lateral veins 16-21 pairs 8. *I. polyneura*
- 7b. Distal lobes of lateral united petals free; capsule clavate or linear-cylindric.
- 12a. Basal and distal lobes of lateral united petals apically acuminate, apex elongated into a filamentous hair or at least basal lobes apically with a long, filamentous hair (except *I. gongshanensis*).
- 13a. Lateral sepals coarsely denticulate, irregularly lacerate, or acutely 4- or 5-denticulate on one side.
- 14a. Lateral sepals coarsely denticulate or at least 4- or 5-denticulate.
- 15a. Lateral sepals often coarsely dentate; lateral united petals not clawed, basal and distal lobes lanceolate, apically with a long, filamentous hair; lower sepal with a 2-lobed, incurved, short spur 209. *I. dicentra*
- 15b. Lateral sepals inequilateral, 4- or 5-denticulate on one side, purple spotted; lateral united petals clawed, basal lobes oblong, apically with a filamentous hair 6-7 mm, distal lobes without a filamentous hair; lower sepal with 2 or 3, 2-lobed, short spurs 210. *I. paradoxa*
- 14b. Lateral sepals inconspicuously denticulate or irregularly lacerate.
- 16a. Inflorescences 1-flowered; bracts narrowly lanceolate; flowers orange-yellow or yellow; lateral sepals subovate-orbicular, inconspicuously denticulate; lower sepal with a hooked, 2-lobed spur; capsule ellipsoid 211. *I. fissicornis*
- 16b. Inflorescences 1-4-flowered; bracts oblong-ovate or narrowly ovate; flowers yellow or pale purple; lateral sepals orbicular or broadly ovate, irregularly lacerate, and sometimes irregularly fimbriate; lower sepal with an incurved, broad or 2-lobed spur; capsule linear.
- 17a. Flowers yellow, to 4.5 cm; lateral sepals orbicular or broadly ovate-orbicular, margin and abaxial midvein irregularly fimbriate, lacerate; lower sepal narrowed into a hooked, incurved, 2-lobed spur 5-6 mm 212. *I. laciniifera*
- 17b. Flowers pale purple, 2-3 cm; lateral sepals broadly ovate or suborbicular, margin irregularly lacerate; leaves basally with a few teeth and glandular hairs; lower sepal saccate, with an incurved, broad spur 213. *I. platyceras*
- 13b. Lateral sepals entire.
- 18a. Basal and distal lobes of lateral united petals apically with a long, filamentous hair.

- 19a. Peduncles very short, inflorescences 1–3-flowered; flowers smaller, white; lateral sepals broadly ovate-cordate, ca. 1 cm in diam., abaxial midvein cristate; lateral united petals broadly clawed; lower sepal broadly funnelform or subsaccate, with a 2-lobed, long spur 214. *I. toxophora*
- 19b. Peduncles longer, 1–3 cm, inflorescences 1- or 2-flowered, rarely 3-flowered; flowers 3–4 cm, yellow or bicolored; lateral sepals orbicular, 1–1.5 cm in diam., abaxial midvein not cristate; lower sepal saccate, with a 2-lobed, incurved, short spur.
- 20a. Lateral sepals purple-red or purple spotted, many veined; upper petal with abaxial midvein broadly cristate, purple or yellow; lower sepal deeply saccate, with a 2-lobed, incurved, short spur; inflorescences terminal 215. *I. platychlaena*
- 20b. Lateral sepals green or yellow-green, abaxial midvein basally with a small sac or turgid; lower sepal saccate or saccate-funnelform, with a 2-denticulate or -lobed, incurved or not, stout spur; inflorescences axillary.
- 21a. Inflorescences 1-flowered, peduncle 0.9–1.1 cm; upper petal orbicular, abaxial midvein large, rounded cristate, lateral united petals broadly shortly clawed, basal lobes purple spotted; lower sepal purple striate, with a 2-lobed, incurved, stout spur; leaf blade with 5 or 6 pairs of lateral veins 216. *I. vittata*
- 21b. Inflorescences 1- or 2-flowered, peduncle 2–3 cm; upper petal subreniform, abaxial midvein narrowly cristate, apex hooked-cuspidate, lateral united petals not clawed, basal lobes not spotted; lower sepal not purple striate, with a 2-denticulate, short, stout spur; leaf blade with 8–10 pairs of lateral veins 217. *I. robusta*
- 18b. Basal lobes of lateral united petals apically with a filamentous hair only, distal lobes apically without a filamentous hair or with a seta.
- 22a. Flowers purple or pink-purple; lower sepal funnelform.
- 23a. Lateral sepals broadly ovate, 10–12 mm wide, margin 4- or 5-denticulate on one side; distal lobes of lateral united petals apically with a long filamentous hair 225. *I. weihsiensis*
- 23b. Lateral sepals orbicular or obliquely ovate, 5–6 mm or 10–15 mm wide, margin entire.
- 24a. Flowers pink; lateral sepals papery, orbicular, 10–15 mm in diam., glabrous, abaxial midvein carinate; distal lobes of lateral united petals broad, apically with a long seta; leaves alternate, ovate or ovate-lanceolate, or oblong-ovate, or upper ones rounded or cordate 226. *I. lecomtei*
- 24b. Flowers blue-purple; lateral sepals obliquely ovate, 5–6 mm wide, adpressed puberulent, 5–7-veined; distal lobes apically without a seta; leaves crowded at apex of stem, narrowly lanceolate 227. *I. gongshanensis*
- 22b. Flowers yellow or white; lower sepal funnelform or saccate.
- 25a. Leaves rigid, base rounded, without glands; lateral sepals broadly ovate, apex acuminate, abaxial midvein narrowly cristate; distal lobes of lateral united petals apically rounded, apically with or without a seta 218. *I. soulieana*
- 25b. Leaves membranous, base acute, rounded, or subcordate, with stipitate glands or filamentous glands; lateral sepals with abaxial midvein cristate or carinate, or not thickened; distal lobes of lateral united petals apically obtuse, without a seta.
- 26a. Lateral sepals with abaxial midvein not thickened, 7–9-veined; inflorescences 1-flowered, above middle 2-bracteate.
- 27a. Peduncles ca. 1 cm; bracts ovate-lanceolate, ca. 3 mm; flowers yellowish; upper petal with abaxial midvein green cristate; lower sepal saccate, with a hooked spur ca. 8 mm 223. *I. davidii*
- 27b. Peduncles 1.5–4.5 cm; bracts linear or ovate; flowers yellow, pink or reddish spotted; upper petal with abaxial midvein camel-backed, cristate; lower sepal broadly funnelform, with a 2-lobed, incurved spur ca. 25 mm 224. *I. tayemonii*
- 26b. Lateral sepals with abaxial midvein thickened, cristate or carinate; inflorescences 1- or 2-flowered, at middle bracteate.
- 28a. Peduncles 3–4 cm, inflorescences 2-flowered; flowers ca. 4 cm 222. *I. waldheimiana*
- 28b. Peduncles 0.5–1.5 cm, inflorescences 1- or 2-flowered; flowers smaller.
- 29a. Flowers pale yellow; lower sepal shortly saccate, with spur 4–5 mm; leaf blade with 7–9 pairs of lateral veins 221. *I. conaensis*
- 29b. Flowers white; lower sepal funnelform, with spur shorter than limb; leaf blade with 4–7 pairs of lateral veins.
- 30a. Peduncles very short, inflorescences 1-flowered; flowers ca. 3 cm in diam.; bracts subulate; lateral sepals 12–20 mm wide, 7-veined, abaxial midvein acutely carinate; leaf blade 6–10 cm, apically acuminate or caudate 219. *I. brevipes*
- 30b. Peduncles 5–10 mm, inflorescences 1- or 2-flowered; flowers 1.5–2 cm in diam.; bracts ovate, apex aristate; lateral sepals ca. 8 mm wide, abaxial midvein narrowly cristate; leaf blade 2–5 cm, apically acute 220. *I. mussotii*
- 12b. Basal lobes of lateral united petals apically not acuminate, not elongated into a long filamentous hair.

- 31a. Lowest pedicels of inflorescence without bract at base.
- 32a. Lower sepal navicular, without spur outside.
- 33a. Middle and upper leaves sessile, base cordate, amplexicaul, margin nearly entire or shallowly undulate; flowers white, very small; distal lobes of lateral united petals oblong-lanceolate 207. *I. nubigena*
- 33b. All leaves shortly petiolate, base truncate or cuneate, margin remotely coarsely crenate; flowers yellow, medium-sized; lower sepal purple brown; distal lobes of lateral united petals linear, apically elongate 1.7–1.8 cm 208. *I. tenerrima*
- 32b. Lower sepal cornute, narrowly funnellform, saccate, or dilated and incurved, with spur outside.
- 34a. Lateral sepals 4.
- 35a. Lower sepal cornute or narrowly funnellform.
- 36a. Peduncles 4–6 cm, inflorescences 4–6-flowered, racemose; bracts membranous, broadly ovate, green or pink-purple, caducous; flowers yellow, tinged purple; lower sepal cornute, with a clavate, curved slender spur 4–5 mm; leaf blade to 8.5 × 3.5 cm, lateral veins 6–8 pairs; plants to 50 cm tall 168. *I. cornucopia*
- 36b. Peduncles 1–1.5 cm, inflorescences 1- or 2-flowered; bracts leaflike, lanceolate, persistent; flowers golden-yellow; lower sepal narrowly funnellform, with a curved or involute spur 15–20 mm; leaf blade to 3 × 1.5 cm, lateral veins 2–6 pairs; plants to 16 cm tall.
- 37a. Peduncles glabrous; outer 2 sepals orbicular, inner 2 ovate; lower sepal purple spotted; leaves glabrous 169. *I. xanthocephala*
- 37b. Peduncles yellow-brown pubescent; outer 2 sepals ovate-lanceolate, inner 2 very small, linear; lower sepal and upper petal puberulent, not spotted; leaves pilose on veins 170. *I. hengduanensis*
- 35b. Lower sepal saccate or dilated and incurved.
- 38a. Lower sepal dilated and incurved, base abruptly contracted into an erect spur 167. *I. gasterocheila*
- 38b. Lower sepal saccate, abruptly narrowed into a short or very short, 2-lobed, curved spur.
- 39a. Stem and both surfaces of leaves pubescent; lateral sepals, upper petal, and lower sepal villous or barbate 160. *I. barbata*
- 39b. Stem, leaves, lateral sepals, upper petal, and lower sepal glabrous.
- 40a. Stem, branches, and peduncles purple or red-brown spotted; outer 2 sepals linear-lanceolate 161. *I. stenosepala*
- 40b. Stem, branches, and peduncles not spotted; outer 2 sepals not linear-lanceolate.
- 41a. Inflorescences 2–4-flowered; flowers pink or pale purple.
- 42a. Flowers pale purple; outer sepals with abaxial midvein carinate, inner sepals subulate; leaves basally rounded or cordate, margin sharply serrate 162. *I. lushiensis*
- 42b. Flowers pink; outer sepals 5–7-veined, inner sepals narrowly oblong; leaves basally broadly cuneate, margin crenate-serrate 163. *I. anhuiensis*
- 41b. Inflorescences 1- or 2-flowered; flowers yellow or orange.
- 43a. Leaves rigidly papery, narrowly oblong or narrowly lanceolate, margin sharply serrate, lateral veins 9–11 pairs; flowers not spotted 166. *I. chiulungensis*
- 43b. Leaves membranous or thinly membranous, ovate to ovate-lanceolate or ovate-oblong, margin crenate, lateral veins 4–7 pairs; flowers purple spotted.
- 44a. All leaves homomorphic, ovate or ovate-lanceolate, shortly petiolate, caudate; upper petal with abaxial midvein conspicuously cristate, distal lobes of lateral united petals entire 164. *I. corchorifolia*
- 44b. Leaves heteromorphic, upper leaves ovate-lanceolate, subsessile, lower leaves ovate or ovate-oblong, long petiolate; upper petal midvein fine, carinate, distal lobes of lateral united petals denticulate 165. *I. dimorphophylla*
- 34b. Lateral sepals 2.
- 45a. Anthers acute.
- 46a. Flowers purple-red or pale purple.
- 47a. Bracts linear-subulate, ca. 2 mm, flowers dark purple; upper petal orbicular, abaxial midvein with elephant-trunk-shaped long rostrum; lower sepal broadly funnellform 177. *I. nasuta*
- 47b. Bracts lanceolate, 3–4 mm, flowers pale violet; upper petal subreniform, abaxial midvein with recurved long rostrum near apex; lower sepal saccate 178. *I. compta*
- 46b. Flowers yellow or yellowish.
- 48a. Bracts orbicular or broadly ovate, margin denticulate.
- 49a. Leaves rigid, oblong or ovate-oblong, lateral veins 6 or 7 pairs; bracts orbicular, 3–4 mm in diam., persistent; lateral sepals membranous, broadly ovate, 4–8-veined 175. *I. latebracteata*
- 49b. Leaves membranous, ovate or elliptic, lateral veins 3–5 pairs; bracts broadly ovate, 4–5 mm, caducous; lateral sepals obliquely ovate 176. *I. oligoneura*

- 48b. Bracts ovate, lanceolate, or subulate, margin crenate or entire.
- 50a. Leaf margin shallowly crenate or nearly entire 174. *I. odontopetala*
- 50b. Leaf margin crenate.
- 51a. Leaves ovate or ovate-elliptic, base cuneate or rounded, adaxially dark green, abaxially green; bracts lanceolate; lateral sepals ovate, 5–6 mm 171. *I. noli-tangere*
- 51b. Leaves elliptic or ovate-oblong, base rounded or cordate, adaxially green, abaxially pale green or gray-green; bracts ovate, very small; lateral sepals orbicular or broadly ovate, 6–8 mm.
- 52a. Bracts 2–3 mm; lateral sepals subcordate, green veined, mucronulate; lateral united petals long clawed, distal lobes narrowly elliptic; flowers yellowish; lower sepal purple spotted 172. *I. longialata*
- 52b. Bracts very small or basal pedicels without bracts; lateral sepals orbicular, reticulate veined; lateral united petals not clawed, distal lobes dolabriform; flowers yellow-white 173. *I. sutchuenensis*
- 45b. Anthers obtuse.
- 53a. Leaf margin coarsely crenate or undulate.
- 54a. Lower and median leaves long petiolate, upper leaves sessile or subsessile, base cordate-amplexicaul, margin coarsely crenate; lower sepal cup-shaped, subglobose, or saccate.
- 55a. Flowers yellow or pink-white; lower sepal subglobose or cup-shaped, violet or purplish yellow striate; leaf blade to 5 cm wide; plants to 90 cm tall 179. *I. poculifer*
- 55b. Flowers pale purple, purple-red, or dirty yellow; lower sepal saccate; leaf blade to 3 cm wide; plants 30–60 cm tall.
- 56a. Flowers pale purple or dirty yellow; lower sepal with an incurved, short spur 180. *I. delavayi*
- 56b. Flowers purple-red; lower sepal without spur or with an erect spur shorter than 2 mm 181. *I. subcalcarata*
- 54b. All leaves petiolate, base cuneate, margin crenate-dentate; flowers yellow; lower sepal navicular or salver-shaped.
- 57a. Bracts linear or subulate; lateral sepals ovate or suborbicular, abaxial midvein without a process; lateral united petals sessile or subsessile, distal lobes of lateral united petals abaxially lobed or incised.
- 58a. Leaf blade broadly ovate or orbicular, base cuneate, margin coarsely crenate; bracts linear; upper petal with abaxial midvein angular; lower sepal navicular, with an incurved spur ca. 1.5 cm 182. *I. notolopha*
- 58b. Leaf blade ovate or ovate-orbicular, base truncate or cordate, margin undulate; bracts subulate; upper petal with abaxial midvein carinate; lower sepal salver-shaped, with an involute spur ca. 2 cm 183. *I. undulata*
- 57b. Bracts ovate or ovate-lanceolate; lateral sepals ovate or linear, abaxial midvein carinate; distal lobes of lateral united petals entire.
- 59a. Bracts ovate; lateral sepals ovate, hyaline margined, abaxial midvein narrowly winged; basal lobes of lateral united petals falcate, recurved; flowers yellowish, upper petal purple-red spotted; plants to 60 cm tall 184. *I. muliensis*
- 59b. Bracts ovate-lanceolate; lateral sepals linear, abaxial midvein carinate; basal lobes of lateral united petals ovate; flowers white; lateral sepals green; plants to 30 cm tall 185. *I. apsotis*
- 53b. Leaf margin serrate, rarely crenate-serrate.
- 60a. Plant usually hairy.
- 61a. Plants yellow-brown spreading tomentose; flowers yellow or white; margin of lateral sepals entire; leaf blade 3–8 cm 186. *I. lasiophyton*
- 61b. Stem, branches, and young leaves yellow-brown tomentulose or at least upper part and nodes yellow-brown pubescent; flowers orange or purple-red; margin of lateral sepals denticulate; leaf blade 5–12 cm.
- 62a. Stem, branches, and peduncles densely yellow-brown tomentose; flowers orange; lateral sepals ovate; leaf margin serrate 187. *I. tomentella*
- 62b. Upper stem and nodes often sparsely yellow-brown pubescent; flowers purple-red; lateral sepals subovate, inequilateral, margin denticulate on one side; leaf margin serrulate 188. *I. leptocaulon*
- 60b. Plant glabrous.
- 63a. Margin of lateral sepals \pm denticulate.
- 64a. Leaf margin serrulate, blade 3–5 cm; flowers yellow 192. *I. minimisepala*

- 64b. Leaf margin crenate or coarsely crenate, blade 4–12 cm; flowers pink, purple, or purple-red.
- 65a. Flowers pink, ca. 1.5 cm; lateral sepals ovate-cordate, 3–4 mm, margin denticulate on one side; leaf blade with 4–6 pairs of lateral veins 191. *I. torulosa*
- 65b. Flowers purple or purple-red, 3.5–4.5 cm; lateral sepals 3–6 mm wide, margin ciliate or denticulate; leaf blade with 7–12 pairs of lateral veins.
- 66a. Bracts linear, 3–4 mm, caducous; lateral sepals ovate or orbicular, 3–4 mm wide, margin ciliate or remotely denticulate; upper petal subreniform, abaxial midvein narrowly thickened; lower sepal with spur to 3.5 cm 189. *I. blepharosepala*
- 66b. Bracts lanceolate, 5–7 mm, persistent; lateral sepals broadly ovate, 5–6 mm wide, margin long cuspidate, denticulate; upper petal oblate, ca. 3.5 cm wide, abaxial midvein narrowly carinate; lower sepal with spur 2–2.5 cm 190. *I. macrovexilla*
- 63b. Margin of lateral sepals entire.
- 67a. Inflorescences 3–7- or 6–8-flowered; flowers in racemes.
- 68a. Inflorescences 6–8-flowered; bracts subulate, 2–3 mm; flowers yellow, ca. 4 cm; lateral sepals reniform-orbicular, apex cuspidate 203. *I. tortisepala*
- 68b. Inflorescences 3–7-flowered; bracts ovate-lanceolate or broadly ovate; flowers pale purple or white, 3–3.5 cm; lateral sepals not reniform.
- 69a. Flowers pale purple; bracts herbaceous, ovate-lanceolate, 2–3 mm, persistent; lateral sepals ovate, ca. 4 mm, 3–5-veined; lower sepal funnellform, with a 2-lobed, curved spur 1–4 cm; leaf blade to 12 cm 204. *I. tienmushanica*
- 69b. Flowers white or yellow; bracts membranous, broadly ovate or ovate-lanceolate, ca. 4 mm, caducous; lateral sepals elliptic or ovate, 5–5.5 mm; lower sepal saccate or funnellform, with an erect or incurved spur 1.5–2.2 cm; leaf blade 14–15 cm.
- 70a. Peduncles stout, inflorescences 4–6-flowered; flowers white; lateral sepals ovate, ca. 5 mm; upper petal suborbicular, abaxial midvein narrowly carinate; lower sepal funnellform, with an erect spur 1.5–1.8 cm; leaf blade with 7–9 pairs of lateral veins 205. *I. jiulongshanica*
- 70b. Peduncles slender, inflorescences 3–6-flowered; flowers yellow; lateral sepals elliptic, ca. 5.5 mm; upper petal obovate, abaxial midvein incarinate; lower sepal saccate, with an erect or incurved spur ca. 2.2 cm; leaf blade with 5 or 6 pairs of lateral veins 206. *I. devolii*
- 67b. Inflorescences 2- or 3-flowered, rarely 1- or 4-flowered, arranged divaricately or subumbellately.
- 71a. Peduncles shorter than 1 cm, stout, inflorescences 2- or 3-flowered, not divaricate.
- 72a. Flowers pink, pedicel 15–25 mm; lateral sepals 1–1.5 cm; lower sepal broadly funnellform, with an involute, long spur 3–4 cm 201. *I. platysepala*
- 72b. Flowers yellow-green, pedicel 7–10 mm; lateral sepals ca. 1.8 cm; lower sepal navicular, with a recurved, slender spur ca. 1.5 cm 202. *I. chloroxantha*
- 71b. Peduncles 2–3 cm, rarely to 6 cm, slender, inflorescences 2–4-flowered, divaricate.
- 73a. Bracts membranous, not linear or linear-lanceolate, caducous or persistent.
- 74a. Leaves often crowded at apex of stem, ovate-lanceolate, margin crenulate or serrate; peduncles 3–5 cm, puberulent; flowers 2, pink, 8–12 mm; lateral sepals subovate or subfalcate; lower sepal funnellform, with an erect spur ca. 1.8 cm; plants of Hubei 198. *I. exiguiflora*
- 74b. Leaves remote, ovate or ovate-elliptic, margin coarsely crenate or crenate-serrate; peduncles shorter than leaves, glabrous; flowers (1 or)2 or 3(or 4), purple or pink, 25–35 mm in diam.; lateral sepals oblong-ovate; lower sepal narrowly funnellform, with a slightly curved or incurved spur 2–2.5 cm; plants of Jiangxi.
- 75a. Bracts pink, ovate-cordate, ca. 8 mm; lateral sepals 8–9 mm, apically inconspicuously mucronulate; leaf blade basally without glands, lateral veins 7–9 pairs 199. *I. fenghwaiana*
- 75b. Bracts purple, elliptic-ovate, 5–7 mm; lateral sepals apically conspicuously cuspidate; leaf blade with 1 or 2 pairs of stipitate glands on petiole, lateral veins 5 or 6 pairs 200. *I. wuyuanensis*
- 73b. Bracts herbaceous, persistent.
- 76a. Peduncles longer or shorter than leaves, inflorescences 2- or 3-flowered; flowers white or green-white.

- 77a. Peduncles overtopping leaves, inflorescences 2-flowered; flowers 1–1.5 cm in diam.; lateral sepals ovate, 6–7 mm, S-curved; leaf blade ovate or ovate-lanceolate, 3–6 cm, margin serrulate 193. *I. sigmoidea*
- 77b. Peduncles shorter than leaves, inflorescences 2- or 3-flowered; flowers ca. 2.5 cm deep; lateral sepals obliquely orbicular, 8–10 mm in diam.; leaf blade ovate or elliptic-lanceolate, margin crenate or serrate 194. *I. nobilis*
- 76b. Peduncles 2–6 cm, inflorescences 2- or 3-flowered, rarely 1- or 4-flowered; flowers yellow, purple, or pink.
- 78a. Peduncles 4–6 cm, inflorescences 2–4-flowered; flowers yellow, ca. 4 cm; lateral sepals ovate-lanceolate, 3–4 mm; lower sepal broadly funnelform, incurved, with a slender spur ca. 1 cm; leaf blade to 15 cm, papery, margin sharply serrate, near base stipitate ciliate; plants of Yunnan 195. *I. divaricata*
- 78b. Peduncles 2–3 cm, inflorescences (1 or)2- or 3-flowered; flowers pink-purple or pink, 2–2.5 cm; lateral sepals ovate, 3–7-veined; lower sepal narrowly funnelform, with spur ca. 1.2 cm or 2–2.5 cm; leaf blade 4–7 cm, membranous, margin crenate or coarsely serrate; plants of Zhejiang.
- 79a. Inflorescences 2(or 3)-flowered, subdivaricate, peduncles 2–3 cm; bracts linear or linear-lanceolate, 3–6 mm; lateral sepals ovate-orbicular, 5–9-veined; mouth of lower sepal oblique, tip rostellate; leaf blade to 7 cm, with glands, lateral veins 5–7 pairs 196. *I. chekiangensis*
- 79b. Inflorescences 1-flowered, peduncles 1.3–1.7 cm; bracts ovate-orbicular, to 3.5 mm; lateral sepals 3-veined; mouth of lower sepal vertical, tip mucronulate; leaf blade to 4 cm, without glands, lateral veins 3–5 pairs 197. *I. taishunensis*
- 31b. Pedicels bracteate at base or middle.
- 80a. Inflorescences 1- or 2(or 3)-flowered.
- 81a. Lateral sepals 4; anthers obtuse.
- 82a. Lower sepal saccate.
- 83a. Flowers purplish yellow; margin of leaf blade crenate-serrulate 90. *I. leveillei*
- 83b. Flowers purple to bluish purple; margin of leaf blade sharply serrate or serrulate.
- 84a. Margin of leaf blade sharply serrulate; plant 40–50 cm tall; flowers bluish purple 91. *I. abbatis*
- 84b. Margin of leaf blade sharply serrate; plant 60–70 cm tall; flowers purple or pink.
- 85a. Leaf blade linear-lanceolate or linear-oblong, 0.8–1.8 cm wide 93. *I. linghamensis*
- 85b. Leaf blade ovate or ovate-lanceolate, 2–4.5 cm wide 92. *I. arguta*
- 82b. Lower sepal navicular or narrowly funnelform.
- 86a. Flowers yellow.
- 87a. Flowers ca. 2.5 cm deep; leaf blade 2.5–3 cm wide 55. *I. luchunensis*
- 87b. Flowers ca. 4 cm deep; leaf blade 4–6 cm wide 54. *I. maguanensis*
- 86b. Flowers purplish.
- 88a. Plants 10–30 cm tall, perennial; leaf blade 1.5–2 cm, apex acuminate; lower sepal narrowly funnelform 56. *I. taronensis*
- 88b. Plants 1–2 m tall, annual; leaf blade 2.5–6 cm, apex acute; lower sepal navicular 57. *I. porphyrea*
- 81b. Lateral sepals 2; anthers obtuse or acute.
- 89a. Anthers obtuse.
- 90a. Flowers deeper than 3 cm.
- 91a. Lateral sepals linear to lanceolate.
- 92a. Flowers pink; leaf blade 3–6 cm 148. *I. begoniifolia*
- 92b. Flowers yellow; leaf blade 5–15 cm.
- 93a. Lower sepal navicular; abaxial midvein of upper petal cristate; leaf blade 4–7 cm wide, margin crenate 146. *I. wuchengyihii*
- 93b. Lower sepal cornute; abaxial midvein of upper petal fine; leaf blade 2–3 cm wide, margin crenulate 158. *I. arctosepala*
- 91b. Lateral sepals ovate or oblong-ovate to orbicular.
- 94a. Flowers pink or reddish.
- 95a. Upper petal with abaxial midvein cristate; lower sepal navicular; leaf blade abaxially gray-green; plants of Yunnan 147. *I. yingjiangensis*
- 95b. Upper petal with abaxial midvein narrowly carinate; lower sepal funnelform; leaf blade abaxially pale green; plants of Guangdong, Guangxi, and Guizhou.
- 96a. Plants 60–100 cm tall, ± hairy 109. *I. napoensis*
- 96b. Plants 30–40 cm tall, glabrous 149. *I. chlorosepala*

- 94b. Flowers yellow or yellowish.
- 97a. Abaxial midvein of upper petal cristate.
- 98a. Plants to 30 cm tall, hairy 145. *I. kamtilongensis*
- 98b. Plants more than 100 cm tall, glabrous 151. *I. extensifolia*
- 97b. Abaxial midvein of upper petal carinate.
- 99a. Lower sepal navicular; leaf petiole 3–4 cm, blade adaxially green; plants 30–60 cm tall 143. *I. monticola*
- 99b. Lower sepal funnellform to saccate; leaf petiole 1–3 cm, blade adaxially dark green; plants 15–40 cm tall.
- 100a. Leaf blade 2.5–3.5 cm wide; stem glabrous 142. *I. mengtszeana*
- 100b. Leaf blade 1–2 cm wide; stem ± hairy 144. *I. trichosepala*
- 90b. Flowers shorter than 3 cm.
- 101a. Abaxial midvein of upper petal cristate or rostellate.
- 102a. Plants ± hairy.
- 103a. Plants more than 100 cm tall; leaf blade (10–)15–20 cm 159. *I. bodinieri*
- 103b. Plants 30–60 cm tall; leaf blade 3–10 cm.
- 104a. Flowers ca. 2.5 cm deep; abaxial midvein of upper petal cornute-carinate; leaf petiole to 5 mm, base of leaf blade rounded, lateral veins 7–9 pairs 101. *I. scabrida*
- 104b. Flowers ca. 3 cm deep; abaxial midvein of upper petal rostellate; leaf petiole 10–20 mm, base of leaf blade cuneate, lateral veins 4–6 pairs 156. *I. ganpiuana*
- 102b. Plants glabrous.
- 105a. Lower sepal cornute; leaf margin crenulate 105. *I. diaphana*
- 105b. Lower sepal funnellform or navicular; leaf margin crenate-serrate or serrate.
- 106a. Leaf blade 5–8 cm, lateral veins 6–10 pairs 155. *I. martinii*
- 106b. Leaf blade 2–4 cm, lateral veins 3–5 pairs.
- 107a. Plants 40–60 cm tall; lower sepal broadly funnellform or navicular; abaxial midvein of upper petal with conspicuous crista or sac 152. *I. rostellata*
- 107b. Plants 10–30 cm tall; lower sepal funnellform; abaxial midvein of upper petal cristate.
- 108a. Plants 10–20 cm tall; flowers solitary, ?pink; leaf blade 2–2.5 cm wide 104. *I. trichopoda*
- 108b. Plants 20–30 cm tall; flowers 2–4, yellow; leaf blade 1–2 cm wide 153. *I. alpicola*
- 101b. Abaxial midvein of upper petal carinate or thickened.
- 109a. Distal lobes of lateral united petals falcate basally 103. *I. falcifer*
- 109b. Distal lobes of lateral united petals not falcate basally.
- 110a. Lower sepal without a spur 102. *I. serrata*
- 110b. Lower sepal with a spur.
- 111a. Plants (30–)40–80 cm tall; lower sepal navicular 154. *I. crassiloba*
- 111b. Plants 15–40 cm tall; lower sepal saccate-funnelform, funnellform, or deeply navicular.
- 112a. Lower sepal deeply navicular or rarely subfunnellform.
- 113a. Plants ca. 25 cm tall; leaf blade linear-oblong or lanceolate, 5–8 cm, margin serrulate, lateral veins 7 or 8 pairs 150. *I. ernstii*
- 113b. Plants 40–60 cm tall; leaf blade elliptic-ovate or ovate-lanceolate, 8–18 cm, margin crenate-serrate, lateral veins 9–11 pairs 72. *I. cymbifera*
- 112b. Lower sepal saccate-funnelform, funnellform, or rarely narrowly funnellform.
- 114a. Flowers yellow, ca. 1.5 cm deep; plants of Zhejiang 139. *I. suichangensis*
- 114b. Flowers pink or pinkish purple, 1.5–2.5 cm deep; plants of Xizang and Yunnan.
- 115a. Plants 20–30 cm tall, perennial; flowers 2–2.5 cm deep; leaf blade 5–9 cm, abaxially yellow-brown when dry 51. *I. microcentra*
- 115b. Plants 5–20 cm tall, annual; flowers 1.5–2 cm deep; leaf blade 1–3.5(–5) cm, abaxially green, or purple spotted.
- 116a. Flowers ca. 2 cm deep; leaf blade 1–2 cm, papery, lateral veins 3 or 4 pairs 62. *I. tsangshanensis*
- 116b. Flowers 1.5–2 cm deep; leaf blade 2–3.5(–5) cm, membranous, lateral veins 5 pairs 50. *I. medogensis*
- 89b. Anthers acute.
- 117a. Flowers yellow.
- 118a. Lower sepal saccate.
- 119a. Upper petal with horn ca. 1 cm; leaf margin crenulate-serrate 30. *I. longicornuta*
- 119b. Upper petal without a conspicuous horn; leaf margin serrate or coarsely serrate.

- 120a. Basal lobes of lateral united petals larger than distal lobes; apex of leaf blade subacute 97. *I. yunnanensis*
- 120b. Basal lobes of lateral united petals smaller than distal lobes; apex of leaf blade acuminate.
- 121a. Abaxial midvein of upper petal rostellate at middle, basal lobes of lateral united petals orbicular; peduncle 1–1.5 cm; leaf lateral veins 5–7 pairs 29. *I. conchibracteata*
- 121b. Abaxial midvein of upper petal keeled, basal lobes of lateral united petals ovate; peduncle 4–5 cm; leaf lateral veins 4 or 5 pairs 157. *I. lepida*
- 118b. Lower sepal funnellform or navicular.
- 122a. Stems prostrate or procumbent.
- 123a. Leaf blade rhombic or subrhombic, base cuneate; lower sepal navicular, with an erect, slender spur 112. *I. rhombifolia*
- 123b. Leaf blade ovate, ovate-elliptic, or ovate-lanceolate, base attenuate; lower sepal with an incurved spur.
- 124a. Flowers 2 or 3, yellow, ca. 2.5 cm deep; lateral sepals ovate, 3–5 mm, curved-falcate; distal lobes of lateral united petals dolabriform; leaf blade 5–7 cm, margin crenate-serrate or serrate 110. *I. reptans*
- 124b. Flowers 1 or 2, golden yellow, 1.5–2 cm deep; lateral sepals obliquely ovate, slightly thick, 3–4 mm, with falcate process; distal lobes of lateral united petals obovate-oblong; leaf blade 2–3 cm, margin serrulate 111. *I. procumbens*
- 122b. Stems erect.
- 125a. Flowers pale yellow.
- 126a. Lower sepal funnellform; leaf blade 5–10 × 3–4.5 cm 136. *I. potaninii*
- 126b. Lower sepal navicular; leaf blade 3–5(–7) × 2.5–3 cm 137. *I. bellula*
- 125b. Flowers yellow.
- 127a. Leaf blade 1.5–2 cm wide, margin spinescent-serrate 95. *I. atherosepala*
- 127b. Leaf blade 2–4 cm wide, margin serrate or crenate.
- 128a. Margin of leaf blade serrulate; abaxial midvein of upper petal cornute below middle .. 96. *I. labordei*
- 128b. Margin of leaf blade coarsely or moderately serrate or crenate; abaxial midvein of upper petal keeled or with a small sac at middle.
- 129a. Abaxial midvein of upper petal with a small sac at middle; apex of leaf blade acute 125. *I. lucorum*
- 129b. Abaxial midvein of upper petal keeled; apex of leaf blade caudate-acuminate.
- 130a. Base of leaf blade cuneate, attenuate into petiole, margin crenate or serrate, lateral veins 6–8 pairs 131. *I. meyana*
- 130b. Base of leaf blade broadly cuneate, margin coarsely serrate, lateral veins 4 or 5 pairs 157. *I. lepida*
- 117b. Flowers purple.
- 131a. Lower sepal saccate.
- 132a. Stems winged 115. *I. uniflora*
- 132b. Stems wingless.
- 133a. Abaxial midvein of upper petal conspicuously carinate with an apical horn, distal lobes of lateral united petals falcate-flabellate; leaf blade abaxially pale green; plants of Sichuan and Yunnan 129. *I. forrestii*
- 133b. Abaxial midvein of upper petal inconspicuously carinate with an apical horn, distal lobes of lateral united petals dolabriform; leaf blade abaxially purple; plants of Henan and Shanxi 119. *I. henanensis*
- 131b. Lower sepal funnellform, navicular, or cornute.
- 134a. Lower sepal cornute.
- 135a. Flowers not more than 2 cm in diam.; pedicels and bracts puberulent; peduncle 2–3 cm; leaf blade membranous 120. *I. imbecilla*
- 135b. Flowers more than 2 cm in diam.; pedicels and bracts glabrous; peduncle 5–10 cm; leaf blade papery 122. *I. faberi*
- 134b. Lower sepal not cornute.
- 136a. Stems prostrate or procumbent.
- 137a. Leaf blade membranous, to 1.8 cm wide, adaxial surface pilose on veins, lateral veins 5 or 6 pairs; lateral sepals apically reflexed, long mucronulate; lateral united petals not clawed, distal lobes broadly dolabriform; plants to 100 cm tall 108. *I. tienchuanensis*

- 137b. Leaf blade rigidly papery, 3–3.5 cm wide, margin and adaxial surface strigose on veins, lateral veins 5–7 pairs; lateral sepals apically cuspidate or mucronulate; lateral united petals clawed or ± clawed, distal lobes suborbicular or dolabriform; plants 40–60 cm tall.
- 138a. Bracts lanceolate or linear-lanceolate; lateral united petals clawed, distal lobes suborbicular, indistinctly auriculate; margin of leaf blade serrate; plants to 40 cm tall 106. *I. commelinoides*
- 138b. Bracts ovate or ovate-lanceolate; lateral united petals ± clawed, distal lobes dolabriform, with lunate inflexed auricle; margin of leaf blade crenate-serrate; plants to 60 cm tall 107. *I. fanjingshanica*
- 136b. Stems erect.
- 139a. Stems simple or rarely branched at middle.
- 140a. Leaf blade 3–5 cm; plants less than 20 cm tall 114. *I. pudica*
- 140b. Leaf blade 5–15 cm; plants 30–100 cm tall.
- 141a. Abaxial midvein of upper petal inconspicuously keeled and without any appendage; plants ca. 30 cm tall 98. *I. trigonosepala*
- 141b. Abaxial midvein of upper petal conspicuously keeled and cristate.
- 142a. Apex of upper petal with a beak ca. 5 mm 99. *I. recurvicornis*
- 142b. Apex of upper petal not beaked.
- 143a. Leaf blade elliptic or elliptic-lanceolate, margin crenate 89. *I. puberula*
- 143b. Leaf blade ovate to ovate-lanceolate or ovate-oblong, margin coarsely and sharply serrate 94. *I. lemeei*
- 139b. Stems branched or repent basally.
- 144a. Limb of lower sepal funnellform; flowers solitary.
- 145a. Leaves basally without glands; lateral sepals lanceolate, basally denticulate, abaxial midvein keeled; lower sepal with a slender spur 1–1.5 cm; peduncle to 6 cm 118. *I. linocentra*
- 145b. Leaves basally with 1 or 2 glands; lateral sepals narrowly ovate, margin sometimes denticulate on one side, abaxial midvein with a narrow wing; lower sepal with a long, incurved spur to 4.5 cm; peduncle 3–4.4 cm.
- 146a. Margin of leaf blade crenate, base with 2 globose glands; lateral sepals ovate, margin sometimes denticulate on one side; distal lobes of lateral united petals broadly oblong; lower sepal narrowly funnellform with a slender, incurved spur 116. *I. pterosepala*
- 146b. Margin of leaf blade serrate, base with 1–3 pairs of globose glands; lateral sepals ovate-orbicular, inequilateral, margin entire; distal lobes of lateral united petals oblong; lower sepal broadly funnellform with a slightly incurved spur ca. 3.5 cm 117. *I. neglecta*
- 144b. Lower sepal cornute or navicular (but funnellform or saccate in a few species); inflorescences of 2 or 3 fascicled flowers, racemose, or flowers solitary (*I. piufanensis* and *I. odontophylla*).
- 147a. Auricle of lateral united petals elongate and linear, inserted in spur of lower sepal; lower sepal erect or incurved.
- 148a. Flowers more than 2 cm in diam., purple-red; pedicels and bracts glabrous; peduncle 5–10 cm; leaf blade papery 122. *I. faberi*
- 148b. Flowers not more than 2 cm in diam.; pedicels and bracts puberulent; peduncle 2–3 cm; leaf blade membranous.
- 149a. Flowers reddish or pink; bracts linear-lanceolate, caducous; distal lobes of lateral united petals dolabriform, apex rounded; lower sepal cornute, with an erect spur; leaf blade adaxially dark green, abaxially gray-green 120. *I. imbecilla*
- 149b. Flowers pink-purple; bracts lanceolate, persistent; distal lobes of lateral united petals broadly incised; lower sepal navicular, with an incurved, short spur; leaf blade adaxially green, abaxially pale green 121. *I. distracta*
- 147b. Auricle of lateral united petals not elongate, not inserted in spur of lower sepal; lower sepal incurved or involute.
- 150a. Limb of lower sepal navicular.
- 151a. Leaf blade rigid, margin crenate or crenate-serrate, basally with stipitate glands; flowers pink-purple; lateral sepals rigid, cordate; abaxial midvein of upper petal rostrate or shortly carinate at middle, distal lobes of lateral united petals large, dolabriform, apically broadly incised 140. *I. amabilis*

- 151b. Leaf blade membranous, margin serrate, base without glands; flowers purple; lateral sepals herbaceous, ovate; abaxial midvein of upper petal green, clavate, erect, rostellate at middle, distal lobes of lateral united petals dolabriform, apically incised 141. *I. rectirostrata*
- 150b. Limb of lower sepal funnellform.
- 152a. Stem base or nodes of lower part swollen to tuberiform with adventitious roots.
- 153a. Stem basally procumbent, lower nodes swollen to tuberiform; leaf blade ovate-lanceolate, lateral veins 4 or 5 pairs, abaxially spinose on veins; basal lobes of lateral united petals rounded-obtuse; lower sepal with spur ca. as long as limb 126. *I. piufanensis*
- 153b. Stem erect, base with subglobose tuber; leaf blade narrowly oblong or linear-lanceolate, lateral veins 7 pairs, adaxially brown pilose; basal lobes of lateral united petals mucronulate; lower sepal with a slender spur 10–12 mm 127. *I. epilobioides*
- 152b. Stem base and lower nodes without swollen globose tuber.
- 154a. Leaf blade rigidly papery, margin inconspicuously serrulate 133. *I. bachii*
- 154b. Leaf blade membranous, margin coarsely serrate or serrate.
- 155a. Inflorescences 2- or 3-flowered; lateral sepals orbicular 128. *I. oxyanthera*
- 155b. Inflorescences 1- or 2-flowered; lateral sepals ovate or ovate-lanceolate.
- 156a. Peduncles ca. as long as leaves, inflorescences 1- or 2-flowered; bracts lanceolate; flowers violet, 3–5 cm deep; lateral sepals ovate-falcate, ca. 7 mm, 5-veined; lower sepal with an incurved, slender spur ca. 2 cm; leaf blade adaxially dark green, abaxially pale green; plants to 60 cm tall 130. *I. lilacina*
- 156b. Peduncles shorter than leaves, inflorescences 1-flowered; bracts linear-lanceolate; flowers pink, ca. 2 cm deep, purple spotted; lateral sepals ovate-lanceolate, ca. 5 mm, 3-veined; lower sepal with a short, curved spur; leaf blade adaxially green, abaxially gray-green; plants to 25 cm tall 132. *I. odontophylla*
- 80b. Inflorescences more than 3-flowered.
- 157a. Flowers 4–5 cm; lower sepal saccate or saccate-funnelform.
- 158a. Lateral sepals 2.
- 159a. Flowers white, red striate; bracts herbaceous, lanceolate 31. *I. rubrostriata*
- 159b. Flowers yellow; bracts fleshy, broadly ovate.
- 160a. Leaves submembranous, adaxially green; upper part of stem sparsely pubescent; lateral veins 5 or 6 pairs; lateral sepals obliquely ovate 28. *I. hunanensis*
- 160b. Leaves papery, adaxially dark green; upper part of stem gray-brown or yellow-brown tomentose; lateral veins 5–9 pairs; lateral sepals obovate or orbicular.
- 161a. Leaf blade ovate or ovate-elliptic, lateral veins 7–9 pairs; lateral sepals thickening, obovate, many veined; lateral united petals shortly clawed, distal lobes dolabriform 26. *I. duclouxii*
- 161b. Leaf blade ovate-lanceolate, lateral veins 5–7 pairs; lateral sepals membranous, orbicular, veins reticulate; lateral united petals not clawed, distal lobes broadly ovate 27. *I. cyclosepala*
- 158b. Lateral sepals 4, outer 2 ovate or obliquely ovate, inner 2 narrowly linear or linear-lanceolate.
- 162a. Leaves remote on stem; peduncles axillary, much longer than leaves; lower sepal subglobose or cup-shaped 12. *I. chimiliensis*
- 162b. Leaves crowded at upper part of stem; peduncles terminal or axillary, shorter than leaves or equaling leaves; lower sepal saccate or broadly funnellform.
- 163a. Flowers yellow, yellowish, or pink; lower sepal saccate.
- 164a. Plants perennial.
- 165a. Peduncles shorter than leaves, inflorescences 4–7-flowered; bracts membranous, ovate-oblong; flowers yellowish, throat red or red-purple spotted; lateral united petals clawed, to 3 cm 13. *I. hongkongensis*
- 165b. Peduncles longer than leaves or ca. as long as leaves, inflorescences 3–8(–13)-flowered; bracts leathery, ovate or navicular; flowers yellow, lower sepal red-brownish striate; lateral united petals broadly clawed, ca. 2 cm 14. *I. pritzelii*
- 164b. Plants annual.
- 166a. Flowers yellow; lower sepal saccate.
- 167a. Leaves lanceolate or oblong-lanceolate, apex acuminate; peduncles shorter than leaves, inflorescences 3- or 4-flowered; abaxial midvein of outer sepals with a narrow wing; lateral united petals shortly clawed, ca. 1.5 cm, distal lobes obovate; lower sepal with spur ca. 2 cm 15. *I. tubulosa*

- 167b. Leaves obovate or spatulate, apex acute; peduncles ca. as long as leaves, inflorescences 2–4-flowered; outer sepals with conspicuous veins; lateral united petals not clawed, to 2 cm, distal lobes subdolabriform, emarginate; lower sepal with a short spur 16. *I. spatulata*
- 166b. Flowers pink; lower sepal broadly funnellform
- 168a. Leaf blade ovate-oblong, lateral veins 5–7 pairs; inflorescences 2–5-flowered; flowers 2–3.5 cm; basal lobes of lateral united petals obliquely ovate, distal lobes oblong, apically obtuse 17. *I. chishuiensis*
- 168b. Leaf blade oblong-lanceolate or lanceolate, lateral veins 7–11 pairs; inflorescences 3–8(–11)-flowered; flowers 4–4.5 cm; basal lobes of lateral united petals obovate, distal lobes oblong-dolabriform, apically slightly acute 18. *I. guizhouensis*
- 163b. Flowers yellow or white; lower sepal saccate or saccate-funnelform.
- 169a. Flowers to 5 cm; lower sepal saccate, with an involute or cochleate, slender spur 2–3 cm 19. *I. apalophylla*
- 169b. Flowers smaller; lower sepal saccate to funnellform, with a stout or short spur ca. 1/2 as long as limb.
- 170a. Anthers apically acute.
- 171a. Petiole 3.5–5 cm, leaf blade 9–12 × 3.5–4 cm; peduncle ca. 1.5 cm; pedicel ca. 1.5 cm; flowers ca. 2 cm, spur ca. 8 mm 21. *I. clavigeroides*
- 171b. Petiole to 2.5 cm, leaf blade 7–9 × 2.5–3.5 cm; peduncle 2–2.5 cm; pedicel ca. 1 cm; flowers ca. 3 cm, spur ca. 4 mm 22. *I. linearisepala*
- 170b. Anthers apically obtuse.
- 172a. Lower sepal with an involute or incurved, short spur, not longer than 1 cm.
- 173a. Flowers yellow, upper petal triangular-orbicular, apex obtuse; lower sepal narrowly funnellform, with an involute, stout spur; leaf petiole 4–6 cm, not glandular; inflorescences terminal 24. *I. omeiana*
- 173b. Flowers white, upper petal elliptic, apex mucronulate; lower sepal saccate, with a very short, curved spur; leaves shortly petiolate or sessile, base remotely glandular; inflorescences axillary 25. *I. wilsonii*
- 172b. Lower sepal with spur ca. 1 cm, ca. 1/2 as long as limb.
- 174a. Stem robust, usually winged; leaf blade membranous, oblanceolate or obovate, margin crenate-serrate, lateral veins 5 or 6 pairs, petiole 1–2 cm; bracts smaller, caducous 20. *I. clavigera*
- 174b. Stem fleshy, wingless; leaf blade rigid, oblong or ovate-oblong, margin inconspicuously denticulate, serrulate, or nearly entire, lateral veins 9–12 pairs, petiole 5–12 cm; bracts ca. 1.5 cm, herbaceous 23. *I. balansae*
- 157b. Flowers medium-sized or smaller, not more than 4 cm; lower sepal funnellform, cup-shaped, narrowly funnellform, or cornute.
- 175a. Distal lobes of lateral united petals loriform or narrowly lanceolate.
- 176a. Lateral sepals 4, outer 2 ovate or falcate-elliptic, inner 2 minute, linear or subulate.
- 177a. Leaves crowded at apices of stem and branches, oblong-ovate or oblong-lanceolate; inflorescences 4–6-flowered; lower sepal with a cylindrical, erect spur ca. as broad as limb ... 52. *I. holocentra*
- 177b. Leaves along stem remotely arranged, linear or linear-oblong; inflorescences 8–12-flowered; lower sepal with a narrowed, curved, slender spur ca. 14 mm 53. *I. tongbiguanensis*
- 176b. Lateral sepals 2.
- 178a. Apices of lateral sepals and tip of mouth of lower sepal rostellate or with a long horn; flowers purple or pink-purple 49. *I. tenuibracteata*
- 178b. Apices of lateral sepals and tip of mouth of lower sepal cuspidate, rostellate or long aristate; flowers yellow or golden-yellow.
- 179a. Lateral sepals navicular or narrowly oblong, apex cuspidate; tip of mouth of lower sepal shortly rostellate or acuminate; bracts persistent.
- 180a. Flowers yellow, purple spotted; lateral sepals ovate, apex apiculate; lower sepal navicular, mouth abruptly curved, tip of mouth acuminate, with spur ca. 15 mm; plants to 80 cm tall 42. *I. dolichoceras*
- 180b. Flowers golden-yellow or yellow, not spotted; lateral sepals oblong, ovate-oblong, or navicular, apex often obtuse; tip of mouth of lower sepal acute or shortly rostellate; plants 40–60 cm tall.
- 181a. Flowers yellow, to 2 cm; lateral sepals oblong, 2–3 mm, apex obtuse, slightly thickening, midvein stout; lower sepal cornute, mouth ascending, tip of mouth acute 40. *I. dichroa*

- 181b. Flowers golden-yellow, ca. 3 cm; lateral sepals navicular, ca. 5 mm, membranous, broader on one side, 3–5-veined; lower sepal narrowly funnelform, mouth ascending, tip of mouth shortly rostellate 41. *I. siculifer*
- 179b. Lateral sepals ovate-oblong or oblong-lanceolate, acuminate or hooked-falcate; tip of mouth of lower sepal slightly acute, cornute-rostellate or long aristate; bracts caducous.
- 182a. Lateral sepals ovate-oblong or oblong-lanceolate, apex acuminate; tip of mouth of lower sepal not aristate.
- 183a. Peduncles distinctly overtopping leaves, 3–5.3 cm; bracts subulate or subulate-lanceolate, apically without glands; tip of mouth of lower sepal obtuse or slightly acute, with a hooked, long spur; plants occurring at ca. 4100 m elevation 43. *I. longipes*
- 183b. Peduncles usually shorter than leaves; bracts ovate-lanceolate; tip of mouth of lower sepal cornute-rostellate, with a slightly curved, slender, long spur; plants occurring up to 3000 m elevation 44. *I. stenantha*
- 182b. Lateral sepals falcate or hooked-curved, apex long aristate; tip of mouth of lower sepal with a long horn or long aristate.
- 184a. Flowers ca. 2.5 cm, pink, purple-brown striate; bracts linear, persistent 48. *I. ceratophora*
- 184b. Flowers smaller, yellow or orange-yellow, red spotted; bracts ovate or ovate-lanceolate, caducous.
- 185a. Leaves rigid, blade to 2.5 cm wide; peduncles overtopping leaves or ca. as long as leaves, inflorescences 3–5-flowered; lateral sepals hooked-curved, with awn 3–4 mm; tip of mouth of lower sepal fibrous, sometimes involute aristate; plants to 30 cm tall 45. *I. principis*
- 185b. Leaves membranous, blade 4–6 cm wide; peduncles overtopping or shorter than leaves, inflorescences 5–12-flowered; lateral sepals falcate, with a long awn; tip of mouth of lower sepal with a long horn or rostellate; plants 60–110 cm tall.
- 186a. Bracts ovate-lanceolate, smaller, glandular cuspidate; upper petal orange-yellow, abaxial midvein slightly spurred; tip of mouth of lower sepal with a long green horn, with a helicoid, incurved spur; leaf blade apically acuminate; plants to 110 cm tall 46. *I. drepanophora*
- 186b. Bracts navicular-ovate, 8–10 mm, aristate; upper petal yellowish, abaxial midvein without a process; tip of mouth of lower sepal rostellate, with a slender, erect or curved spur; leaf blade apically acute; plants to 60 cm tall 47. *I. ruiliensis*
- 175b. Distal lobes of lateral united petals dolabriform or semilunar or ovate.
- 187a. Flowers medium-sized, usually deeper than 2 cm.
- 188a. Flowers yellow or whitish, rarely with purplish shade.
- 189a. Upper petal with cristate midvein.
- 190a. Flowers golden yellow, ca. 2.5 cm deep, with a saccate lower sepal; leaf blade lanceolate or ovate-lanceolate 100. *I. cristata*
- 190b. Flowers yellow, ca. 1.8 cm deep, with a funnelform lower sepal; leaf blade ovate-elliptic 153. *I. alpicola*
- 189b. Upper petal without cristate midvein.
- 191a. Flowers with pale purplish spots 73. *I. urticifolia*
- 191b. Flowers without purple spots.
- 192a. Inflorescences (1 or)2–5-flowered 70. *I. nyimana*
- 192b. Inflorescences (5 or)6–13 flowered.
- 193a. Leaf blade rhombic-ovate or rhombic-lanceolate 58. *I. furcillata*
- 193b. Leaf blade not rhombic-ovate, nor rhombic-lanceolate.
- 194a. Flowers 3–3.5 cm deep; plants with dense yellow-brown glandular hairs 32. *I. cyathiflora*
- 194b. Flowers 2–2.5 cm deep; plants glabrous or with sparse glandular hairs.
- 195a. Bracts caducous, apex scarcely mucronate, cuspidate 35. *I. scutisepala*
- 195b. Bracts persistent, apex acuminate or glandular aristate.
- 196a. Flowers pale yellow with a saccate lower sepal; petiole with 2 globose glands at base 33. *I. clavispis*
- 196b. Flowers yellow with a funnelform lower sepal; petiole without basal glands 34. *I. loulanensis*
- 188b. Flowers purple, blue-purple, pink, pale purple, or pale pink, very rarely with light yellow shade.
- 197a. Leaf blade rhombic-ovate or rhombic-lanceolate.
- 198a. Stems and peduncles with dense red-purple glandular hairs; flowers 2.5–4 cm deep 59. *I. textorii*

- 198b. Stems and peduncles with sparse glandular hairs or without glandular hairs; flowers ca. 2 cm deep 58. *I. furcillata*
- 197b. Leaf blade not rhombic-ovate or rhombic-lanceolate.
- 199a. Flowers blue-purple to blue-violet or rarely purple to pale blue-purple.
- 200a. Bracts caducous.
- 201a. Inflorescences 3- or 4-flowered 37. *I. blinii*
- 201b. Inflorescences more than 5-flowered.
- 202a. Distal lobes of lateral united petals with a rounded apex; pedicel 9–11 mm 36. *I. cyanantha*
- 202b. Distal lobes of lateral united petals with a retuse apex; pedicel 16–20 mm 64. *I. hancockii*
- 200b. Bracts persistent.
- 203a. Lower sepal broadly sigmoid-curved-saccate 71. *I. bicornuta*
- 203b. Lower sepal obliquely or broadly funnelform.
- 204a. Flowers 3.5–5 cm deep; distal lobes of lateral united petals lanceolate 38. *I. purpurea*
- 204b. Flowers 2–2.5 cm deep; distal lobes of lateral united petals dolabriform 67. *I. fragicolor*
- 199b. Flowers pink or pinkish.
- 205a. Bracts caducous.
- 206a. Inflorescences 3–5-flowered; flowers 2.5–3 cm deep 61. *I. uliginosa*
- 206b. Inflorescences 6–12-flowered; flowers 3–4 cm deep.
- 207a. Leaf blade 4–7 cm wide; flowers ca. 3 cm deep 39. *I. pseudokingii*
- 207b. Leaf blade 1.5–2.5 cm wide; flowers 3.5–4 cm deep 60. *I. aquatilis*
- 205b. Bracts persistent.
- 208a. Flowers 3–3.5 cm deep.
- 209a. Flowers ca. 3 cm deep; lower sepal navicular-cornute; leaves alternate 124. *I. lateristachys*
- 209b. Flowers 3–3.5 cm deep; lower sepal saccate; leaves opposite or verticillate 65. *I. sulcata*
- 208b. Flowers 1.5–2.5 cm deep.
- 210a. Bracts ovate-lanceolate.
- 211a. Flowers ca. 2 cm deep; all leaves sessile; bases of upper and middle leaves amplexicaul 68. *I. amplexicaulis*
- 211b. Flowers 1.5–1.7 cm deep; lower and middle leaves shortly petiolate; bases of upper and middle leaves not amplexicaul 69. *I. chungtienensis*
- 210b. Bracts linear or narrowly lanceolate to lanceolate.
- 212a. Flowers 1.5–2.5 cm deep; basal lobes of lateral united petals rounded at apex, distal lobes of lateral united petals slightly acute at apex; apex of bract without glandular hairs 63. *I. jinggangensis*
- 212b. Flowers ca. 2 cm deep; basal lobes of lateral united petals acute at apex, distal lobes of lateral united petals rounded at apex; apex of bract with glandular hairs 66. *I. thomsonii*
- 187b. Flowers small, usually less than 1.5(–2) cm deep except spur.
- 213a. Lower sepal without spur, navicular 88. *I. margaritifera*
- 213b. Lower sepal with spur, funnelform, navicular, or obconical.
- 214a. Bracts caducous or nearly persistent.
- 215a. Stem slender; flowers pale purple, 8–9 mm; lateral sepals falcate; capsule shortly clavate, 5-angled, tuberculate 84. *I. tuberculata*
- 215b. Stem relatively stout, rigid; flowers yellow, 5–10 mm in diam.; lateral sepals falcate; capsule linear or narrowly terete, not tuberculate.
- 216a. Lateral sepal falcate-ovate, narrowly ovate, oblong, or obliquely lanceolate.
- 217a. Stem and branches sparsely stipitate glandular; bracts lanceolate, apex glandular aristate; flowers orange; lateral sepals obliquely lanceolate, glandular aristate; seeds tuberculate 85. *I. polyceras*
- 217b. Stem and branches without glands; bracts ovate or oblong, apex not aristate; flowers yellow; lateral sepals ovate or oblong, not glandular aristate; seeds smooth.
- 218a. Inflorescences racemose; peduncles many, crowded at apices of branches, usually shorter than leaves; lateral sepals falcate-ovate, 3-veined; abaxial midvein of upper petal narrowly cristate; lower sepal with an incurved spur 2–2.5 cm 86. *I. desmantha*
- 218b. Inflorescences corymbose; peduncles slender, in axils of upper part, distinctly overtopping leaves; lateral sepals narrowly ovate or oblong, midvein stout, not veined; abaxial midvein of upper petal without a process, lower sepal with a curved spur ca. 2 × as long as limb 87. *I. gracilipes*
- 216b. Lateral sepal ovate to orbicular or subcordate.
- 219a. Flowers less than 1 cm deep; leaves often crowded 138. *I. fargesii*

- 219b. Flowers 1–2 cm deep; leaves not crowded.
- 220a. Flowers ca. 1 cm deep, white; lateral sepals lorate; margin of leaf blade serrulate or crenate-mucronulate 113. *I. membranifolia*
- 220b. Flowers 1–2 cm deep, yellow; lateral sepals orbicular or subcordate; margin of leaf blade crenate or crenulate.
- 221a. Flowers 1–1.5 cm deep, yellow; leaf lateral veins 6–8 pairs 134. *I. crenulata*
- 221b. Flowers 1.5–2 cm deep, pale yellow; leaf lateral veins 2–4 pairs 135. *I. henryi*
- 214b. Bracts persistent.
- 222a. Flowers many, pale purple to yellowish white, fascicled or verticillate, radiately arranged 74. *I. radiata*
- 222b. Flowers several, alternate, white, pink, or yellow, in racemes or corymbs.
- 223a. Lateral united petals very shortly auriculate or without auricle; lower sepal conic or navicular.
- 224a. Flowers white or pink; lateral sepals ovate or ovate-subulate, 3-veined, apex glandular apiculate, margin without glands; lower sepal navicular, with an erect, short spur 76. *I. laxiflora*
- 224b. Flowers yellow or yellowish; lower sepal conical, with an incurved, long spur.
- 225a. Lateral sepals falcate or obliquely ovate, apex aristate; leaf blade membranous, lateral veins 7–9 pairs 75. *I. racemosa*
- 225b. Lateral sepals ovate-orbicular, apex obtuse; leaf blade papery, lateral veins 6 or 7 pairs 123. *I. microstachys*
- 223b. Lateral united petals auriculate; lower sepal navicular, with a long, curved spur.
- 226a. Flowers ca. 1 cm in diam.
- 227a. Flowers pink; upper petal with abaxial midvein not carinate; lower sepal navicular, with an incurved spur ca. 1 cm; plants of Yunnan 77. *I. bahanensis*
- 227b. Flowers yellowish or white; lower sepal navicular, with a short, erect spur; plants of Xinjiang.
- 228a. Flowers pale yellow, throat reddish spotted; lower sepal navicular, with a conical, erect spur 5–7 mm; leaf blade to 11 cm 78. *I. parviflora*
- 228b. Flowers white, not spotted; lower sepal with a cuneate-triangular, short spur shorter than 1 mm; leaf blade to 15 cm 79. *I. brachycentra*
- 226b. Flowers more than 1 cm in diam.
- 229a. Flowers sulfur-colored; bracts setaceous or lanceolate to linear, 1–1.5 mm; lower sepal with a rectangular or involute spur 1–1.2 cm or ca. 3.5 cm.
- 230a. Lateral sepals obliquely ovate or sigmoid, 2–4 mm; lower sepal navicular, with a rectangular spur ca. 3.5 cm; peduncle 7–15 cm; leaf blade to 17 cm 80. *I. rectangula*
- 230b. Lateral sepals broadly ovate or orbicular, apically mucronulate; lower sepal navicular, mouth vertical, with an incurved, slender spur 1–1.2 cm; peduncle 3–6 cm; leaf blade to 8 cm 81. *I. thiochroa*
- 229b. Flowers yellow or pale yellow; bracts ovate or ovate-lanceolate, 3–4 mm; lower sepal with an incurved or suberect spur 2–2.5 cm.
- 231a. Stem robust, ca. 1 cm in diam. at base, many branched from lower part; peduncles axillary or terminal, inflorescences few flowered; flowers ca. 1.5 cm in diam.; lateral sepals narrowly triangular-ovate, 1-veined; leaf blade with 4 or 5 pairs of lateral veins 82. *I. crassicaudex*
- 231b. Stem slightly slender, branched; peduncles axillary, inflorescences 3–10-flowered, corymbose or racemose; flowers 1.5–2 cm; lateral sepals obliquely ovate or falcate, 3–6 veined; leaf blade with 6–8 pairs of lateral veins 83. *I. infirma*

1. *Impatiens chinensis* Linnaeus, Sp. Pl. 2: 937. 1753.

华凤仙 hua feng xian

Impatiens cosmia J. D. Hooker; *I. crassicornu* J. D. Hooker.

Plants annual, 30–60 cm tall. Stem erect in upper part, prostrate basally, slender, glabrous; nodes slightly swollen, with adventitious roots. Leaves opposite, sessile or subsessile; leaf blade gray-green abaxially, green adaxially, linear or linear-lanceolate, rarely obovate, 2–10 × 0.5–1 cm, rigidly papery, with

stipular basal glands, abaxially glabrous, adaxially scabrous, lateral veins 5–7 pairs, inconspicuous, base subcordate, truncate, or rounded, margin remotely spiniform-serrate, apex acute or slightly obtuse. Inflorescences 1-flowered, or flowers 2- or 3-fascicled in leaf axils; peduncles absent. Pedicels 2–4.4 cm, slender, often scabrous hairy on one side, bracteate at base; bracts linear. Flowers purple-red or white, large. Lateral sepals 2, linear, ca. 1 × 0.1 cm, apex acute. Lower sepal funnellform, ca. 1.5 cm deep, striate, gradually narrowed into an incurved or involute, slender spur. Upper petal orbicular, ca. 1 cm in diam., apex emarginate, mucronulate, abaxial midvein narrowly cari-

nate; lateral united petals not clawed, 1.4–1.5 cm, 2-lobed; basal lobes suborbicular, small; distal lobes broadly obovate to dolabriform (axe-shaped), apex rounded-obtuse; auricle narrow. Stamens 5; filaments linear, compressed; anthers ovoid-orbicular, apex obtuse. Ovary fusiform. Capsule elliptic, turgid at middle, glabrous. Seeds black, globose, ca. 2 mm in diam., shiny. Fl. Jun–Aug, fr. Sep–Nov. $2n = 16$.

Often beside ponds, streamsides, field margins, swamps; 100–1200 m. Anhui, Fujian, Guangdong, Guangxi, Hainan, Hunan, Jiangxi, Yunnan, Zhejiang [India, Malaysia, Myanmar, Thailand, Vietnam].

The whole plant is used medicinally for relieving fever and pain, removing toxic materials, promoting blood circulation, treating diarrhea, curing urinary infections, and healing carbuncles.

2. *Impatiens balsamina* Linnaeus, Sp. Pl. 2: 938. 1753.

凤仙花 feng xian hua

Balsamina hortensis Desportes (1816), not A. St.-Hilaire (1808).

Plants annual, 60–100 cm tall. Stem erect, robust, base ca. 8 mm in diam., succulent, simple or branched, glabrous or laxly pubescent when young, with many fibrous roots, lower nodes swollen. Leaves alternate, sometimes lowest ones opposite; petiole 1–3 cm, adaxially shallowly sulcate, both sides with few pairs of stipitate glands; leaf blade lanceolate, narrowly elliptic, or oblanceolate, 4–12 × 1.5–3 cm, with a pair of sessile black glands toward base, both surfaces glabrous or sparsely pubescent, lateral veins 4–7 pairs, base cuneate, margin deeply serrate, apex acuminate. Inflorescences 1-flowered, or 2 or 3 flowers fascicled in leaf axils, without peduncles. Pedicels 2–2.5 cm, densely pubescent, bracteate at base; bracts linear. Flowers white, pink, or purple, simple or double petalous. Lateral sepals 2, ovate or ovate-lanceolate, 2–3 mm. Lower sepal deeply navicular, 13–19 × 4–8 mm, pubescent, abruptly narrowed into an incurved spur; spur 1–2.5 cm, slender. Upper petal orbicular, apex retuse, mucronulate, abaxial midvein narrowly carinate; lateral united petals shortly clawed, 2.3–2.5 cm, 2-lobed; basal lobes obovate-oblong, small; distal lobes suborbicular, apically retuse; auricle narrow. Stamens 5; filaments linear; anthers ovoid, apex obtuse. Ovary fusiform, densely pubescent. Capsule broadly fusiform, 1–2 cm, densely tomentose, narrowed at both ends. Seeds many, black-brown, globose, 1.5–3 mm in diam., tuberculate. Fl. Jul–Oct. $2n = 14^*$.

A common ornamental plant, widely cultivated in gardens and houses throughout China [native to SE Asia; cultivated worldwide].

The flowers and leaves are often used for coloring fingernails. The stem and seeds are used medicinally for promoting blood circulation and for relieving pain and sore throats.

3. *Impatiens aureliana* J. D. Hooker, Hooker's Icon. Pl. 29: t. 2851. 1908.

缅甸凤仙花 mian dian feng xian hua

Plants erect, small, 15–20 cm tall. Stem erect, simple. Leaves alternate, petiolate or sessile; petiole 5–12 mm; leaf blade whitish abaxially, green adaxially, ovate or ovate-lanceolate, 3–5 × 1.5–2 cm, rigid, both surfaces spreading multicellular pubescent, ciliate along basal margin, ciliae at basal part 1–

3 mm, lateral veins 4 or 5 pairs, base gradually attenuate into petiole, margin inconspicuously crenate or nearly entire, apex acute. Inflorescences 1-flowered in upper leaf axils. Pedicels 2–3 cm, slender, spreading pubescent, base 2-bracteate or with 1 small bract only. Flowers pink-purple, ca. 2 cm, ca. 3.5 cm deep. Lateral sepals 2, narrowly subulate, 1–1.5 mm, apex slightly awned. Lower sepal navicular, 1–3 cm deep, gradually narrowed into a slender spur, mouth oblique, 0.8–1 cm, tip acute. Upper petal pink-purple, broadly obovate, ca. 0.9 × 1.2 cm, apex retuse, abaxial midvein thickened, puberulent, narrowly cristate; lateral united petals not clawed, short, ca. 1.2 cm, 2-lobed; basal lobes broadly oblong, ca. 9 × 5 mm, apex slightly retuse-truncate; distal lobes triangular-ovate, ca. 8 × 6 mm, apex rounded or emarginate; auricle suborbicular. Filaments subulate, short; anthers ovoid, small, apex obtuse. Ovary ovoid, 4–5 mm, puberulent, apex acute. Capsule fusiform, ca. 1.5 cm, tomentose. Seeds few, brown, oblong, 3–5 mm, glabrous. Fl. Jul–Sep. $2n = 12$.

Broad-leaved forests, riverbanks; 700–1700 m. SW Yunnan [Myanmar].

4. *Impatiens walleriana* J. D. Hooker in Oliver, Fl. Trop. Afr. 1: 302. 1868.

苏丹凤仙花 su dan feng xian hua

Impatiens holstii Engler & Warburg; *I. sultanii* J. D. Hooker.

Plants perennial, succulent, green or reddish tinged, 30–70 cm tall, simple or branched, glabrous or rarely slightly pubescent at shoot apices. Leaves alternate; petiole 1.5–6 cm, with 1 or 2, rarely few, stipitate glands; leaf blade broadly elliptic or ovate to oblong-elliptic, 4–12 × 2.5–5.5 cm, with 1 or 2, rarely few, stipitate basal glands, glabrous, lateral veins 5–8 pairs, base cuneate, rarely ± rounded, attenuate into petiole, margin crenate-denticulate, apex acute or acuminate, or somewhat cuspidate. Inflorescences in leaf axils of upper stem and branches, usually 2(–5)-flowered, sometimes 1-flowered; peduncles 3–5 cm. Pedicels 1.5–3 cm, slender, bracteate at base; bracts linear-lanceolate or subulate, ca. 2 mm, apex acute. Flowers variable in size and color: red, crimson-red, pink, purple-red, purplish violet, or white. Lateral sepals 2, greenish or whitish, ovate-lanceolate or linear-lanceolate, 3–7 mm, apex acute. Lower sepal shallowly navicular, 0.8–1.5 cm deep, abruptly constricted into a curved spur; spur filiform, 2.4–4 cm. Upper petal broadly obcordate or obovate, 1.5–1.9 × 1.3–2.5 cm, apex emarginate, cuspidate, abaxial midvein narrowly cristate; lateral united petals not clawed, 1.8–2.5 cm, 2-lobed; basal and distal lobes nearly equal in size and shape; basal lobes obovate or obovate-spatulate, 1.4–2 × ca. 1.4 cm; distal lobes 1.2–2.3 × ca. 1.8 cm, margin entire or emarginate. Ovary fusiform, ca. 4 mm, glabrous. Capsule fusiform, 1.5–2 cm, glabrous. Fl. Jun–Oct. $2n = 16$.

Coastal forest areas, riverine thickets, river margins, shaded places, humid places, also cultivated in gardens and greenhouses; ca. 1800 m. Guangdong, Hebei [native to E Africa; widely cultivated in many parts of the world].

A beautiful ornamental plant, this species is very variable in leaf shape and flower color.

5. *Impatiens bracteata* Colebrooke ex Roxburgh, Fl. Ind. 2: 459. 1824.

睫苞凤仙花 jie bao feng xian hua

Impatiens fimbriata Hooker.

Plants annual, 30–40 cm tall. Stem erect, simple or shortly branched in lower part, glabrous or slightly pubescent in upper part. Leaves opposite or alternate, rarely verticillate; petiole long, 0.5–2 cm, sparsely pubescent; leaf blade ovate or ovate-lanceolate, 4–6 × 2.5–4 cm, abaxially slightly pubescent on veins, adaxially sparsely or densely adpressed hairy, lateral veins 7 or 8 pairs, margin crenate-serrate, apex acute or acuminate. Inflorescences terminal, occasionally axillary, erect, subumbellate or densely racemose, 4–8-flowered; peduncles 1.5–6 cm. Pedicels bracteate at base; bracts linear, ciliate. Flowers pink-purple or purple, small. Lateral sepals 2, lanceolate. Lower sepal navicular, with an incurved spur 8–9 mm. Upper petal ovate-orbicular, abaxial midvein conspicuously cristate; lateral united petals ± clawed; basal lobes orbicular, small; distal lobes subovate; auricle inflexed. Anthers obtuse. Ovary oblong. Capsule elliptic, narrowed at both ends, glabrous. Seeds obovoid, compressed, hairy. Fl. Aug–Sep, fr. Oct.

Mixed forests; ca. 2700 m. SE Xizang [NE India (Khasia)].

6. *Impatiens xanthina* H. F. Comber, Notes Roy. Bot. Gard. Edinburgh 18: 248. 1934.

金黄凤仙花 jin huang feng xian hua

Plants annual, small, 6–20 cm. Stem simple or branched from base; lower part often naked, upper part puberulent. Leaves alternate, or crowded at apices of stem and branches and subverticillate, shortly petiolate in lower part of stem, subsessile in upper part; petiole ca. 1.5 cm; leaf blade gray-green abaxially, green adaxially, lanceolate, elliptic-lanceolate, or oblong-spatulate, 4.5–7 × 1.5–2 cm, membranous (membranaceous), abaxially glabrous or veins puberulent, adaxially slightly scabrid on veins, midvein conspicuously raised abaxially, lateral veins 7–9 pairs, base broadly cuneate, gradually attenuate into petiole in lower leaves, margin crenate-denticulate, teeth mucronulate, setose between teeth, apex acute or acuminate. Inflorescences 1- or 2-flowered; peduncles ca. 1/2 as long as or overtopping leaves, 2–2.5 cm, slender, puberulent. Pedicels 1–2 cm, elongate in fruit, bracteate at middle or below; bracts persistent, ovate-lanceolate, small, abaxially setose, apex acute. Flowers golden-yellow, mouth purple-brown spotted, 2–2.5 cm deep. Lateral sepals 2, triangular-ovate, ca. 9 mm, apex acute. Lower sepal narrowly funnellform, limb navicular, ca. 2 cm deep, gradually narrowed into an involute spur 2.2–2.5 cm; mouth vertical, 6–8 mm wide, tip cuspidate. Upper petal cucullate, suborbicular, 6–7 mm, abaxially puberulent, base purple-tinged; lateral united petals ± clawed, 1.1–1.2 or 1.5–1.6 cm, 2-lobed; basal lobes orbicular, small; distal lobes dolabriform or ovate-dolabriform, apex obtuse; auricle absent. Filaments broadly winged, ca. 3 mm; anthers obtuse. Ovary erect, elliptic, ca. 3 mm. Capsule elliptic, turgid, 1–1.5 cm, narrowed at both ends. Seeds numerous. Fl. Aug–Sep, fr. Oct.

Shaded humid places in forest understories, valleys; 1200–2800 m. NW Yunnan [NE Myanmar].

- 1a. Stem 10–20 cm tall; peduncles ca. 1/2 as long as leaves, inflorescences 1- or 2-flowered; lateral united petals 1.5–1.6 cm 6a. var. *xanthina*
 1b. Stem ca. 6 cm tall; peduncles overtopping leaves, inflorescences 1-flowered; lateral united petals 1.1–1.2 cm 6b. var. *pusilla*

6a. *Impatiens xanthina* var. *xanthina*

金黄凤仙花(原变种) jin huang feng xian hua (yuan bian zhong)

Stem 10–20 cm tall. Inflorescences 1- or 2-flowered; peduncles ca. 1/2 as long as leaves. Lateral united petals 1.5–1.6 cm.

Shaded humid places in forest understories, valleys; 1600–2800 m. NW Yunnan [NE Myanmar].

6b. *Impatiens xanthina* var. *pusilla* Y. L. Chen, Acta Phytotax. Sin. 16(2): 49. 1978.

细小金黄凤仙花 xi xiao jin huang feng xian hua

Stem ca. 6 cm tall, very slender. Inflorescences 1-flowered; peduncles overtopping leaves. Lateral united petals 1.1–1.2 cm.

- Shaded wet stony places; 1200–1300 m. NW Yunnan.

7. *Impatiens obesa* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 242. 1908.

丰满凤仙花 feng man feng xian hua

Impatiens eramosa Tutcher ex W. Y. Chun.

Plants succulent, 30–40 cm tall, glabrous. Stem erect, flat, thick, simple or rarely shortly branched from middle, naked in lower part. Leaves alternate, often crowded toward apex of stem, polymorphic; petiole 1–4 cm, with 2 sessile glands at base; leaf blade greenish abaxially, ovate or oblanceolate, 4–15 × 2.5–3.5 cm, glabrous, lateral veins 8–15 pairs, base cuneate, attenuate into petiole, margin serrulate, apex acute or acuminate. Inflorescences in leaf axils, 1- or 2-flowered; peduncles very short, 2–3 mm. Pedicels 1–2.5 cm, slender, glabrous, bracteate at base; bracts persistent, ovate, ca. 2 mm, membranous. Flowers pink-purple, 2–3 cm deep. Lateral sepals 4; outer 2: orbicular or elliptic-orbicular, 8–15 mm in diam., apex cuspidate; inner 2: minute, ovate, ca. 2 mm. Lower sepal shallowly saccate or cup-shaped, ca. 1.5 cm deep, abruptly constricted into an incurved, short spur; mouth oblique, ca. 1.5 cm wide, tip acuminate. Upper petal broadly obovate or cuneate, 1–1.5 cm, apex retuse or truncate, mucronulate, abaxial midvein thickened, cristate; lateral united petals not clawed, 8–15 mm, 2-lobed; basal lobes spreading, pyriform; distal lobes dolabriform, often connate into 2-lobed lamella; auricle inflexed, triangular. Filaments linear, 4–5 mm; anthers ovoid, apex obtuse. Ovary erect, fusiform. Capsule fusiform. Seeds brown, orbicular, compressed, ca. 4 mm in diam. Fl. Jun–Jul.

• Forest margins on slopes, valleys, watersides; 400–800 m. N Guangdong, Hunan, Jiangxi.

This species has very short pedunculate inflorescences, pedicels

bracteate at the base, and distal lobes of lateral united petals connate or adnate into a lamella. These characters seem to indicate a group in the genus including also *Impatiens hainanensis*, *I. morsei*, *I. musyana*, and *I. polyneura*.

8. *Impatiens polyneura* K. M. Liu, Acta Phytotax. Sin. 37: 201. 1999.

多脉凤仙花 duo mai feng xian hua

Plants annual, 40–70 cm tall, glabrous. Stem erect, yellow-green, often purple spotted, robust, succulent, simple, long naked in lower part. Leaves alternate, crowded at apex of stem; petiole 2.6–6 cm, purple spotted; leaf blade greenish abaxially, dark green adaxially, elliptic or oblong-elliptic, 9–18 × 5–7 cm, thickly membranous, lateral veins 16–21 pairs, base cuneate, with 2 sessile ovoid glands, margin serrulate, apex shortly acuminate. Inflorescences in upper leaf axils, 2-flowered, rarely 1-flowered; peduncles short, ca. 3 mm. Pedicels 1–1.5 cm, elongate in fruit, slender, bracteate at base; bracts persistent, triangular-ovate, small, ca. 3 mm, membranous. Flowers purplish, 1.6–2.2 cm in diam. Lateral sepals 4, purple spotted; outer 2: broadly elliptic or suborbicular, 0.9–1.2 × 0.7–0.9 cm, 9–11-veined, margin entire, apex mucronulate; inner 2: lanceolate, 2.5–4 mm. Lower sepal purple spotted, broadly funnel-form, 1.8–2.2 cm deep, narrowed into an incurved, 2-lobed spur ca. 6 mm; mouth oblique, ca. 1.7 cm wide, tip mucronulate. Upper petal obovate-oblong, 1.3–1.8 × 0.9–1.1 cm, apex retuse, abaxial midvein carinate; lateral united petals clawed, 2.2–2.8 cm, 2-lobed; basal lobes orbicular; distal lobes suborbicular, ca. 2.2 × 1 cm, apex emarginate, mucronulate. Filaments linear, ca. 1 mm; anthers ovoid, apex obtuse. Ovary fusiform, ca. 7 mm. Capsule fusiform, 2.2–2.5 cm, slightly curved, 4-angled. Seeds 7 or 8, brown, orbicular, ca. 3.8 mm, papillose. Fl. and fr. unknown.

- Streamsides in valleys; ca. 400 m. Hunan (Zixing).

9. *Impatiens musyana* J. D. Hooker, Bull. Misc. Inform. Kew 1909: 8. 1909.

越南凤仙花 yue nan feng xian hua

Plants small, 5–10 cm tall, succulent, glabrous. Stem erect, terete, simple, long naked in lower part. Leaves alternate, crowded; petiole 2–4 cm, with 2 globose glands at apex; leaf blade ovate, 9–13.5 × 3–4.5 cm, lateral veins 8–12 pairs, base cuneate, margin crenate-serrate, teeth mucronulate, apex acute or obtuse. Peduncles absent. Pedicels 2–4 cm, not bracteate. Flowers solitary, pink-purple, yellow within, 3–5 cm wide. Lateral sepals 4; outer 2: ovate or ovate-orbicular, 1.2–1.4 × 1–1.4 cm, rigid, veins reticulate, apex cuspidate; inner 2: minute, oblong, ca. 1 mm, apex mucronulate. Lower sepal cup-shaped or deeply navicular, abruptly constricted into an erect or incurved spur; spur short, 0.8–1 cm, stout or subtergoid; mouth vertical, 2–2.5 cm, tip acute. Upper petal cucullate, obovate-oblong or orbiculate, 1.5–1.8 cm, apex recurved, deeply retuse, rostellate, abaxial midvein carinate below middle; lateral united petals broad; basal lobes broadly falciform-flabellate, 1.5–2.5 cm; distal lobes connate into orbicular, entire labellum 2–2.5 cm; auricle small, densely adnate. Filaments linear; anthers connate. Ovary slightly curved. Capsule clavate, ca. 2 cm. Seeds 5

or 6, red-brown, oblong, 3–3.5 mm, glabrous. Fl. May–Aug, fr. unknown.

Dense forests in valleys, streamsides, stony places; 800–1900 m. SE Yunnan (Funing, Wenshan) [N Vietnam].

10. *Impatiens morsei* J. D. Hooker, Hooker's Icon. Pl. 29: t. 2874. 1908.

龙州凤仙花 long zhou feng xian hua

Plants annual, 30–60(–100) cm tall, glabrous. Stem erect, purple-tinged, robust, succulent, simple or branched, long naked in lower part. Leaves alternate, crowded apically; petiole 3–5 cm, stout; leaf blade greenish abaxially, dark green adaxially, ovate, elliptic, or ovate-oblong, 8–13 × 5–7 cm, with 2 globose basal glands, glabrous, lateral veins 9–12 pairs, base cuneate or acuminate, margin serrulate or crenulate, teeth mucronulate, apex acute. Peduncles absent. Pedicels 4–5 cm, without bracts, elongate after anthesis. Flowers solitary in upper leaf axils, white, pink, or purple, inside orange spotted, 2.5–3 cm. Lateral sepals 2, green, obliquely orbicular, 0.8–1.5 cm, thick, many veined, midvein conspicuous, apex mucronulate. Lower sepal navicular or funnel-form, ca. 1.2 cm deep, abruptly constricted into an incurved spur shorter than limb; mouth vertical, ca. 1.5 cm wide. Upper petal orbicular, 1–1.5 cm wide, apex deeply retuse, abaxial midvein thickened; lateral united petals clawed, 2-lobed; basal lobes falcate-flabellate; distal lobes oblong, connate into 2-lobed lamella; auricle inconspicuous. Filaments linear, flattened; anthers obtuse. Ovary fusiform. Capsule not seen. Fl. and fr. Jun–Oct.

- Dense forest understories, streamsides in valleys, shaded and humid places; 400–1000 m. Guangxi.

This species has been recently cultivated in the Guangxi Botanic Garden.

11. *Impatiens hainanensis* Y. L. Chen, Guihaia 7(1): 9. 1987.

海南凤仙花 hai nan feng xian hua

Plants annual, robust, 75–125 cm tall, glabrous. Stem succulent, simple or divaricately branched from middle, lower nodes swollen, naked. Leaves alternate, usually crowded at apices of stem and branches, internodes 5–15 mm; petiole 2.5–5 cm; leaf blade greenish abaxially, dark green adaxially, ovate-elliptic or ovate, 5–8 × 2.5–4 cm, thinly papery, with 2 ovoid-orbicular sessile basal glands, glabrous, midvein conspicuously raised, lateral veins 7–9 pairs, base broadly cuneate or subrounded, margin crenate-serrate, teeth curved-mucronulate, apex acute or acuminate. Inflorescences axillary, very short or subsessile, 1-flowered, occasionally 2-flowered. Pedicels slender, elongate in fruit, bracteate at base; bracts caducous, triangular-ovate or linear-lanceolate, minute. Flowers yellow or yellowish, 2.5–3 cm deep. Lateral sepals 2, yellowish green, sparsely purple spotted, suborbicular or broadly ovate-orbicular, 1.1–1.2 × 1.1–1.2 cm, membranous, ca. 12-veined, margin entire, apex mucronulate. Lower sepal shallowly saccate, 1.5–2 cm deep, abruptly constricted into a recurved, 2-lobed spur 5–6 mm; mouth oblique, ca. 1.5 cm wide, tip acute. Upper petal slightly cucullate, obovate-elliptic, 1.5–1.6 cm × ca. 8 mm, apex emarginate, cuspidate, abaxial midvein thickened, conspicuously

cristate, crista subrounded; lateral united petals shortly clawed, 2–2.2 cm, 2-lobed; basal lobes suborbicular; distal lobes longer, broadly dolabriform, 1–1.2 × ca. 1 cm, apex undulate; auricles connate. Filaments linear, 5–6 mm, apex enlarged; anthers ovoid, apex obtuse. Ovary erect, fusiform, ca. 5 mm. Capsule clavate, 2–2.2 cm. Seeds 4 or 5, brown, oblong, ca. 3 mm, tuberculate. Fl. Jun–Jul.

• Dense forest understories, crevices and ledges of limestone cliffs; 1200–1300 m. Hainan.

12. *Impatiens chimiliensis* H. F. Comber, Notes Roy. Bot. Gard. Edinburgh 18: 246. 1934.

高黎贡山凤仙花 gao li gong shan feng xian hua

Plants annual, robust, 75–125 cm tall. Stem erect, naked in lower part, simple. Leaves remote; petiole 1.5–3 cm; leaf blade olivaceous abaxially, green adaxially, ovate or ovate-elliptic, (6–)8–13 × 4.5–7 cm, membranous, setose between teeth, lateral veins 5–7 pairs, base broadly cuneate, margin coarsely crenate-denticulate, apex acuminate or shortly acute. Inflorescences in upper leaf axils, racemes 3–9-flowered; peduncles overtopping leaves, erect or spreading, ca. 14 cm. Pedicels 1.5–2 cm, bracteate at base; bracts persistent, ovate, 5–6 × 2–3 mm, membranous, apex cuspidate. Flowers yellow or purple-tinged, ca. 4 cm deep. Lateral sepals 4; outer 2: broadly ovate, 6–8 × 3–5 mm, apex mucronulate, abaxially not thickened, 3–5-veined; inner 2: lanceolate, ca. 1.2 cm, 3-veined. Lower sepal subglobose or cup-shaped, ca. 2.5 cm deep, ca. 2 cm wide, narrowed into an incurved spur ca. 8 mm; mouth vertical, ca. 2 cm wide, tip acute. Upper petal orbicular, 7–8 mm, apex emarginate, mucronulate, abaxial midvein thickened, narrowly carinate; lateral united petals not clawed, 2.5–3 cm, 2-lobed; basal lobes broadly ovate; distal lobes elliptic-lanceolate, apex obtuse; auricle broad. Filaments linear, ca. 5 mm; anthers ovoid-orbicular, apex obtuse. Ovary fusiform. Capsule linear, ca. 2 cm. Seeds many. Fl. Sep, fr. Oct.

Shaded and humid places at thicket margins, streamsides; ca. 3200 m. SE Xizang (Médog), NW Yunnan [Myanmar].

13. *Impatiens hongkongensis* Grey-Wilson, Kew Bull. 33: 551. 1979.

香港凤仙花 xiang gang feng xian hua

Plants perennial, 60–70 cm tall, glabrous. Stem erect, sometimes prostrate, remotely branched, with adventitious roots at lower nodes. Leaves alternate; petiole 0.8–2.7 cm; leaf blade greenish abaxially, dark green adaxially, elliptic to elliptic-oblong, 8–18 × 2.5–5.5(–7) cm, lateral veins 5–9 pairs, adaxially with 3 or 4 pairs of basal glands, base cuneate, attenuate into petiole, margin shallowly crenate, teeth mucronulate, apex acuminate or caudate-acuminate. Inflorescences in upper leaf axils, racemes lax, (3 or)4–7-flowered; peduncles ascending, shorter than leaves, 3.7–6.6 cm. Pedicels 2–3.4 mm, bracteate at base; bracts caducous, ovate-oblong, 4–7 mm, membranous, apex acute. Flowers pendulous, yellowish, mouth red-tinged, and red or reddish purple spotted, large. Lateral sepals 4; outer 2: ovate, slightly inequilateral, 9–10 × 6–8 mm; inner 2: linear-oblong, 1.1–1.3 cm × 1.5–2.5 mm, membranous. Lower sepal saccate, 1.7–2.4 cm deep, ca. 2.8 cm wide, constricted

into an incurved spur; spur linear, 1.5–2 cm. Upper petal subcucullate, broadly ovate or suborbicular, 1–1.3 × 1.2–1.4 cm, abaxial midvein thickened, narrowly carinate; lateral united petals clawed, 2.7–3 cm, 2-lobed; basal lobes obovate-spatulate, 1.8–2.1 × 0.9–1.2 cm; distal lobes oblong-obovate, ca. 0.9 × 0.5 cm. Filaments linear; anthers obtuse. Ovary fusiform. Capsule (immature) clavate, ca. 1.5 cm. Seeds unknown. Fl. Oct.

• Humid places on slopes; 100–170 m. Guangdong (Shenzhen), Hong Kong.

14. *Impatiens pritzelii* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 243. 1908.

湖北凤仙花 hu bei feng xian hua

Impatiens pritzelii var. *hupehensis* J. D. Hooker.

Plants perennial, 20–70 cm tall, glabrous, with a procumbent tortuous subterranean stem. Stem succulent, simple, swollen at middle and lower nodes. Leaves alternate, crowded at apex of stem, sessile or shortly petiolate; leaf blade oblong-lanceolate or broadly ovate-elliptic, 5–18 × 2–5 cm, setulose between teeth, lateral veins 7–9 pairs, conspicuous on both surfaces, base cuneate, decurrent into petiole, margin crenate, apex acuminate or acute. Inflorescences in upper leaf axils, racemes 3–8(–13)-flowered; peduncles overtopping or ca. as long as leaves, strict. Pedicels 2–3 cm, bracteate at base; bracts caducous, ovate or navicular, 5–8 mm, leathery, apex acuminate. Flowers yellow or yellow-white, 1.6–2.2 cm deep. Lateral sepals 4; outer 2: broadly ovate, 8–10 × 4–5 mm, inequilaterally veined, apex acuminate; inner 2: linear-lanceolate, 1–1.4 cm, hyaline, 1-veined, apex curved. Lower sepal incurved, red-brownish striate, saccate, 2.5–3.5 cm deep, gradually narrowed into an incurved or involute spur 1.4–1.7 cm; mouth vertical, 1.5–1.8 cm wide, tip acute. Upper petal broadly elliptic or obovate, 1.4–1.6 cm, membranous, apex cuspidate, abaxial midvein slightly thickened; lateral united petals broadly clawed, ca. 2 cm, 2-lobed; basal lobes obovate; distal lobes longer, oblong or subdolabriform, apex rounded or emarginate; auricle inflexed, triangular. Filaments linear; anthers obtuse. Ovary fusiform, long rostellate. Capsule unknown. Fl. Oct.

• Forest understories, humid grasslands in valleys, streamsides; 400–1800 m. NW Hubei, E Sichuan.

The roots and stem are used medicinally to improve circulation, reduce swelling, stop bleeding, alleviate pain, and treat injuries, trauma, and dysentery.

15. *Impatiens tubulosa* Hemsley, J. Linn. Soc., Bot. 23: 102. 1886.

管茎凤仙花 guan jing feng xian hua

Impatiens plebeja Hemsley.

Plants annual, 30–40 cm tall. Stem erect, robust, succulent, simple, glabrous, swollen in lower nodes. Leaves alternate, lower leaves withering at anthesis, upper leaves often crowded; petiole 0.5–1.5 cm, stout; leaf blade gray-green abaxially, green adaxially, lanceolate or oblong-lanceolate, 6–13 × 2–3 cm, glabrous, lateral veins 7–9(–11) pairs, base cuneate, decurrent, margin crenate-denticulate, teeth mucronulate, apex acuminate or long acuminate. Inflorescences racemose, 3- or 4(or 5)-flow-

ered; peduncles robust, strict, 2–4 cm. Pedicels 2–4 cm, bracteate at base; bracts caducous at fruiting, ovate-lanceolate, 5–7 mm, membranous. Flowers yellow. Lateral sepals 4; outer 2: obliquely ovate, 5–6 mm, apex acute, abaxial midvein narrowly winged; inner 2: narrowly lanceolate or linear-lanceolate, 0.9–1 cm, apex long acuminate. Lower sepal saccate, gradually narrowed into a recurved spur ca. 2 cm; mouth oblique, tip mucronulate. Upper petal obovate-elliptic, ca. 1 cm, apex rostellate, abaxial midvein green, narrowly carinate; lateral united petals shortly clawed, ca. 1.5 cm, 2-lobed; basal lobes oblong, small; distal lobes obovate; auricle absent. Filaments linear; anthers ovoid, apex obtuse. Ovary erect, fusiform. Capsule clavate, 2–2.5 cm, swollen at upper part. Seeds 3 or 4, brownish, oblong-globose, 4–5 mm, smooth. Fl. Aug–Dec.

• Forest understories, shaded and humid places along canals; 500–700 m. Fujian, N Guangdong, Hunan (Xinning), Jiangxi, Zhejiang.

16. *Impatiens spathulata* Y. X. Xiong, Acta Phytotax. Sin. 34: 98. 1996.

勺叶凤仙花 shao ye feng xian hua

Plants annual, 20–45 cm tall, glabrous. Stem erect, striate when dry, succulent, simple, lower nodes swollen, with many fibrous roots. Leaves crowded at upper part of stem; petiole 1.5–2 cm; leaf blade obovate, oblanceolate, spatulate, or oblong, 6–16 × 2–6 cm, membranous, setose between teeth, lateral veins 5–9 pairs, base cuneate, margin coarsely crenate, apex acute. Inflorescences in upper leaf axils, racemose, 2–4-flowered; peduncles 6–16 cm, strict. Pedicels 1.8–3 cm, slender, bracteate at base. Flowers yellow, 2.5–3.5 cm deep. Lateral sepals 4; outer 2: obliquely ovate, 6–9 × 3.5–4.5 mm, conspicuously veined, base inequilateral, apex acute; inner 2: lanceolate, 1–1.3 cm × 2.5–3 mm, apex recurved. Lower sepal saccate, 3–3.5 cm deep, gradually narrowed into an involute, short spur; mouth oblique, 1.5–2 cm, tip mucronulate. Upper petal elliptic, 1–1.2 cm × 6–8 mm, abaxial midvein thickened, narrowly carinate; lateral united petals not clawed, 1.5–2 cm, 2-lobed; basal lobes obovate; distal lobes subdolabriform, apex emarginate; auricle inflexed, large. Filaments linear; anthers obtuse. Ovary fusiform, 3.5–4.5 mm. Capsule unknown. Fl. Oct.

• Humid places by waterfalls; ca. 400 m. Guizhou (Chishui).

17. *Impatiens chishuiensis* Y. X. Xiong, Acta Phytotax. Sin. 34: 99. 1996.

赤水凤仙花 chi shui feng xian hua

Plants annual, 30–50 cm tall, glabrous. Stem erect, simple. Leaves alternate; petiole 0.5–2 cm; leaf blade ovate-oblong, 6–11 × 2.5–3.5 cm, setose between marginal teeth, lateral veins 5–7 pairs, base cuneate, margin coarsely crenate, apex acuminate. Inflorescences in upper leaf axils, 2–5-flowered; peduncles 4–11 cm. Pedicels 1–2.5 cm, slender, bracteate at base; bracts caducous. Flowers pinkish, 2–3.5 cm deep. Lateral sepals 4; outer 2: obliquely ovate, 0.9–1.1 × ca. 0.4 cm, conspicuously veined, apex acute; inner 2: linear-lanceolate, 1–1.2 cm, hyaline, apex recurved. Lower sepal broadly funnelform, gradually narrowed into an incurved spur 1.5–1.8 cm; mouth vertical, ca. 2 cm, tip acute. Upper petal elliptic or ovate, 1–1.2 cm × 7–8 mm, base rounded, abaxial midvein thickened, narrowly carinate; lateral

united petals not clawed, ca. 2.5 cm, 2-lobed; basal lobes obliquely ovate, apex acute; distal lobes oblong, apex obtuse; auricle inflexed, suborbicular. Filaments linear; anthers small, obtuse. Ovary erect, fusiform. Capsule clavate, swollen at upper part. Fl. Sep–Oct.

• Moist places by waterfalls; ca. 400 m. Guizhou (Chishui).

18. *Impatiens guizhouensis* Y. L. Chen, Acta Phytotax. Sin. 37: 97. 1999.

贵州凤仙花 gui zhou feng xian hua

Plants annual, 20–45 cm tall, glabrous. Stem erect or sometimes ascending at base, succulent, long naked on lower part, lower nodes swollen. Leaves alternate, often crowded at upper part of stem; petiole 1–2 cm; leaf blade often becoming purple abaxially, dark green adaxially, oblong-lanceolate or lanceolate, 8–15(–21) × 2–4 cm, membranous, setose between teeth, lateral veins 7–9(–11) pairs, base cuneate, attenuate into petiole, margin coarsely crenate, apex acuminate. Inflorescences in upper leaf axils, 3–8(–11)-flowered; peduncles ca. as long as or longer than leaves, strict. Pedicels 1.5–2 cm, elongate in fruit, slender, bracteate at base; bracts caducous, ovate or navicular, 6–8 × ca. 3 mm, apex acuminate. Flowers spreading, pink, 4–4.5 cm deep, inequilateral. Lateral sepals 4; outer 2: 5-veined, apex incurved, mucronulate, abaxial midvein thickened, narrowly carinate; inner 2: linear, 1.1–1.2 cm × 2–2.5 mm, 1-veined, hyaline, apex curved, mucronulate. Lower sepal red spotted, broadly funnelform, 3–3.5 cm deep, gradually narrowed into an incurved spur 1.5–2 cm; mouth oblique, 1.8–2 cm, tip acute. Upper petal elliptic-obovate or suborbicular, 1.2–1.3 cm, apex emarginate, abaxial midvein conspicuously thickened, carinate; lateral united petals ± clawed, ca. 2 cm; basal lobes red spotted, obovate; distal lobes longer, oblong-dolabriform; auricle inflexed, subovate. Filaments linear, ca. 4 mm; anthers ovoid, apex obtuse. Ovary fusiform, 5–6 mm. Capsule clavate, 2–2.5 cm, (2 or)3- or 4-seeded. Seeds dark brown, oblong, ca. 2.5 mm, smooth. Fl. Jun–Sep.

• Forest understories, shaded moist places; 700–1100 m. Guizhou, Yunnan (Guangnan).

19. *Impatiens apalophylla* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 243. 1908.

大叶凤仙花 da ye feng xian hua

Impatiens clavigera J. D. Hooker var. *auriculata* S. H. Huang.

Plants 30–60 cm tall, with a long rhizome. Stem erect, robust, simple. Leaves alternate, crowded at upper part of stem; leaf blade oblong-ovate or oblong-oblanceolate, 10–22 × 4–8 cm, setose between teeth, lateral veins 9 or 10 pairs, base cuneate, margin repand-crenate, apex acuminate. Inflorescences axillary, racemose, 4–10-flowered; peduncles 7–15 cm. Pedicels ca. 2 cm. Flowers yellow, large, to 5 cm. Lateral sepals 4; outer 2: obliquely ovate; inner 2: linear-lanceolate. Lower sepal saccate, abruptly elongated into a slightly curved or involute spur; spur long, 2–3 cm. Upper petal elliptic, apex rounded, mucronulate, abaxial midvein fine; lateral united petals not clawed, 2-lobed; basal lobes oblong, apex acuminate; distal

lobes narrowly oblong, apex rounded-obtuse; abaxial auricle broad. Anthers obtuse. Ovary unknown. Capsule clavate. Fl. and fr. Jun–Nov.

• Forest understories, grasslands on slopes, shaded moist places; 900–1500 m. Guangdong, Guangxi, Guizhou, S Yunnan.

The whole plant is used medicinally for treating irregular menstruation, injuries, and trauma.

20. *Impatiens clavigera* J. D. Hooker, Hooker's Icon. Pl. 29: t. 2863. 1908.

棒凤仙花 *bang feng xian hua*

Plants annual, 50–60 cm tall, glabrous. Stem robust, often winged, long naked in lower part, often tortuous, simple or branched in upper part. Leaves often crowded at upper part of stem, alternate; petiole 1–2 cm; leaf blade pale green abaxially, dark green adaxially, obovate or oblanceolate, 8–15(–18) × 3.5–5 cm, midvein prominent abaxially, lateral veins 5 or 6 pairs, curved, membranous, base cuneate, attenuate into petiole, margin crenate-serrate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, racemose, many flowered; peduncles shorter than leaves, 8–10 cm. Pedicels 1–2 cm, bracteate at base; bracts caducous, ovate, 3–4 × 2–3 mm, herbaceous, apex acuminate. Flowers pendulous, yellowish, large, 4–5 cm deep. Lateral sepals 4; outer 2: obliquely ovate, 0.8–1.2 × ca. 0.5 cm, apex acute or acuminate; inner 2: longer, linear-lanceolate, falcate-curved, ca. 1.7 cm, apex acuminate. Lower sepal subsaccate, ca. 3 cm deep, abruptly narrowed into an incurved spur ca. 1 cm; mouth oblique, ca. 2 cm wide. Upper petal obovate, ca. 2 cm, apex rounded, retuse, mucronulate, abaxial midvein thickened, carinate at upper part to middle; lateral united petals not clawed, 2.5–2.6 cm, 2-lobed; basal lobes orbicular, large; distal lobes incurved, oblong, longer, apex rounded-obtuse; auricle rounded. Filaments linear, swollen apically; anthers ovoid, apex obtuse. Ovary ovoid. Capsule (immature) clavate, ca. 1.5 cm. Fl. Oct–Jan of next year, fr. Jan–Feb.

Understories of sparse and dense forests, moist places in valleys; 1000–1800 m. Guangxi, SE Yunnan [N Vietnam].

The whole plant is used medicinally for treating carbuncles and skin injuries.

21. *Impatiens clavigeroides* S. Akiyama et al., Bull. Natl. Sci. Mus., Tokyo, Ser. B, 22: 141. 1996.

拟棒凤仙花 *ni bang feng xian hua*

Plants ca. 45 cm tall. Leaves alternate, crowded at upper part of stem, petiolate or nearly sessile in upper leaves; petiole 3.5–5 cm; leaf blade elliptic, 9–12 × 3.5–4 cm, both surfaces nearly glabrous, base attenuate into petiole, margin crenate, apex acute to acuminate. Inflorescences in upper leaf axils, pendulous beneath subtending leaf, racemose, usually with 2 flowers and few aggregated small flower buds; peduncles ca. 1.5 cm, glabrous. Pedicels ca. 1.5 cm, glabrous, bracteate at base; bracts not caducous, ovate, 5–7 mm, apex acute. Flowers pale yellow, large, ca. 2 cm, ca. 4 cm deep. Lateral sepals 4; outer 2: obliquely broadly ovate, ca. 1.5 × 1.2 cm, apex acute; inner 2: longer, linear, ca. 1.8 cm, apex acuminate. Lower sepal pale yellow, with reddish veins, saccate, ca. 2.4 cm, ca. 1.7 cm

deep excluding spur, abruptly narrowed into an incurved spur ca. 8 mm (ca. 2 cm overall); mouth oblique. Upper petal pale yellow, with reddish veins, broadly obovate, ca. 1.6 × 2 cm, apex slightly retuse, mucronulate, abaxial midvein thickened, carinate; lateral united petals pale yellow, with reddish veins, ca. 2.8 cm, 2-lobed; basal lobes narrowly obovate, ca. 1.8 × 0.7 cm, apex acute; distal lobes obovate, ca. 1.3 × 1 cm, apex retuse; auricle inflexed, rounded. Anthers ovoid, apex acute, connective glabrous. Fl. Oct. $2n = 34^*$.

• Forests, moist places; 1700–1900 m. SW Yunnan.

22. *Impatiens linearisepala* S. Akiyama et al., Bull. Natl. Sci. Mus., Tokyo, Ser. B, 22: 142. 1996.

线萼凤仙花 *xian e feng xian hua*

Plants ca. 30 cm tall. Leaves alternate, crowded at upper part of stem, petiolate or nearly sessile in upper leaves; petiole 1–2.5 cm; leaf blade elliptic, 7–9 × 2.5–3.5 cm, both surfaces nearly glabrous, base attenuate into petiole, margin crenate, apex acute. Inflorescences in upper leaf axils, pendulous beneath subtending leaf, racemose, 1-flowered or aggregately 2-flowered; peduncles 2–2.5 cm, glabrous. Pedicels ca. 1 cm, glabrous, bracteate at base; bracts not caducous, ovate, ca. 5 mm, apex acute. Flowers pale greenish yellow, large, ca. 3 cm, ca. 4 cm deep. Lateral sepals 4; outer 2: obliquely ovate, ca. 7 × 5 mm, apex acute; inner 2: longer, linear, ca. 1.4 cm, apex acuminate. Lower sepal pale greenish yellow, saccate, ca. 1.9 cm, ca. 2.5 cm deep excluding spur, abruptly narrowed into an incurved spur ca. 4 mm; mouth oblique. Upper petal pale greenish yellow, nearly orbicular, ca. 1.7 × 1.9 cm, apex rounded, abaxial midvein thickened, cristate above middle, crista ca. 5 mm high; lateral united petals pale greenish yellow, ca. 2.6 cm, 2-lobed; basal lobes oblong-obovate, ca. 1.6 × 0.8 cm, apex rounded; distal lobes oblong-obovate, ca. 1.7 × 0.8 cm, apex slightly retuse; auricle inflexed, rounded. Anthers ovoid, apex acute, connective glabrous. Fl. Aug. $2n = 36^*$.

• Forests, moist places; 1700–1900 m. SW Yunnan.

23. *Impatiens balsanae* J. D. Hooker, Hooker's Icon. Pl. 29: t. 2862. 1908.

大苞凤仙花 *da bao feng xian hua*

Plants annual, 40–60 cm tall. Stem erect, robust, fleshy, branched in upper part. Leaves alternate; petiole 5–12 cm, brown pilose; leaf blade gray-green abaxially, dark green adaxially, ovate-oblong or elliptic, 12–15 × 5–6.5 cm, rigidly papery, puberulent on veins, lateral veins 9–12 pairs, base attenuate into petiole, with 1 or 2 pairs of stipitate globose glands, margin serrulate, apex acuminate. Inflorescences at apex of stem or in upper leaf axils, racemose, many flowered; peduncles erect, longer than petioles, 5–12 cm. Pedicels 1.3–2 cm, bracteate at base; bracts caducous, ovate-lanceolate, ca. as long as pedicels, herbaceous. Flowers yellow, large, 4–5 cm deep. Lateral sepals 4; outer 2: subovate, 1.5–2 cm × 5–6 mm, apex acuminate, abaxial midvein not thickened; inner 2: linear-oblong, ca. 1.5 × 3–4 mm, apex mucronulate. Lower sepal saccate-funnelform, 3–3.5 cm deep, narrowed into an incurved spur ca. 1/2 as long as limb; mouth oblique, tip acuminate, 2–2.5 cm

wide. Upper petal elliptic or obovate, ca. 1.2 cm, apex mucronulate; lateral united petals ± clawed, ca. 2.5 cm, 2-lobed; basal lobes obovate-cuneate; distal lobes curved, ± clawed, dolabriform, longer; auricle absent. Filaments fibrous, ca. 5 mm; anthers ovoid, apex obtuse. Ovary fusiform. Capsule not seen. Fl. Oct.

Sparse forests, by streams, shaded moist places; 1000–1400 m. S Yunnan [N Vietnam].

24. *Impatiens omeiana* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 244. 1908.

峨眉凤仙花 e mei feng xian hua

Impatiens tubulosa Hemsley f. *omeiensis* E. Pritzel.

Plants erect, 30–50 cm tall, with robust rhizome, simple, nodes turgid. Leaves alternate, often crowded at upper part of stem; petiole 4–6 cm; leaf blade lanceolate or ovate-oblong, 8–16 × 4–5 cm, setose between teeth, lateral veins 5–7 pairs, base cuneate, margin coarsely crenate, apex acuminate. Inflorescences terminal, racemose, 5–8-flowered; peduncles 4–10 cm. Pedicels ca. 2 cm, slender, bracteate at base; bract ovate-oblong. Flowers yellow, large. Lateral sepals 4; outer 2: obliquely ovate; inner 2: falcate. Lower sepal narrowly funnellform, narrowed into an involute, short spur. Upper petal triangular-orbicular, apex rounded, cuspidate, abaxial midvein slightly thickened; lateral united petals not clawed, 2-lobed; basal lobes subtetragonous; distal lobes dolabriform, longer, apex rounded; abaxial auricle broad. Anthers obtuse. Ovary fusiform. Capsule unknown. Fl. Aug–Sep.

• Understories of thickets and forests, forest margins; 900–1000 m. Sichuan.

25. *Impatiens wilsonii* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 244. 1908.

白花凤仙花 bai hua feng xian hua

Plants erect, 30–50 cm. Stem robust, nodes turgid. Leaves alternate, often crowded at upper part of stem, shortly petiolate or subsessile; petiole with sparse glands; leaf blade oblong-obovate or oblanceolate, 8–15 × 2.5–6 cm, setose between teeth, adaxially sparsely pilose on veins, lateral veins 6–8 pairs, base long cuneate, margin remotely crenate, apex acute or acuminate. Inflorescences in terminal leaf axils, racemose, 4–10-flowered; peduncles 4–6 cm. Flowers white, large. Lateral sepals 4, outer 2: ovate; inner 2: falcate. Lower sepal saccate, constricted into a curved, short spur. Upper petal elliptic, apex emarginate, mucronulate, abaxial midvein carinate; lateral united petals not clawed, 2-lobed; basal lobes oblong; distal lobes dolabriform, large; abaxial auricle short. Anthers obtuse. Ovary fusiform. Capsule unknown. Fl. Aug–Sep.

• Forest understories, along canals, shaded moist places; 800–1000 m. Sichuan (Emei Shan).

26. *Impatiens duclouxii* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 245. 1908.

滇南凤仙花 dian nan feng xian hua

Impatiens jurpioides Shimizu.

Plants annual, 40–90 cm tall. Stem erect, branched or simple, glabrous in upper part; branchlets and young leaves gray-brown tomentulose. Leaves alternate; petiole ca. 2.5 cm, slender; leaf blade greenish abaxially, dark green adaxially, ovate or ovate-elliptic, 7–15 × 3–6(–8) cm, thinly papery, abaxially glabrous, adaxially sparsely strigose, lateral veins 7–9 pairs, curved, base broadly cuneate or subrounded, margin coarsely serrate, apex acuminate. Inflorescences in terminal leaf axils, racemose, 3–6-flowered; peduncles shorter than leaves, (5–)8–10 cm. Pedicels 0.5–1 cm, elongate after anthesis, slender, bracteate at base; bracts persistent, broadly ovate, ca. 3 × 1.5–2 mm, fleshy, apex mucronulate. Flowers yellow, 3–3.5 cm deep. Lateral sepals 2, orbicular or obovate, 7–10 mm, thick, many veined, apex mucronulate. Lower sepal saccate, ca. 3 cm deep, narrowed into an incurved, involute, hooked spur; mouth oblique, 1–1.5 cm, tip acute. Upper petal orbicular or broadly obovate, 1–1.3 cm, apex retuse, abaxial midvein thickened, broadly triangular cristate; lateral united petals broadly shortly clawed, ca. 3 cm, 2-lobed; basal lobes orbicular, large; distal lobes dolabriform, longer, apex rounded-obtuse; auricle large. Filaments linear; anthers acute. Ovary fusiform, apex acute. Capsule clavate, curved, 1.5–2.5 cm. Seeds many, brown, globose. Fl. Aug–Sep, fr. Sep–Oct.

Understories of mixed and dense forests; 1500–2500 m. Yunnan [Thailand].

27. *Impatiens cyclosepala* J. D. Hooker ex W. W. Smith, *Notes Roy. Bot. Gard. Edinburgh* 8: 338. 1915.

环萼凤仙花 huan e feng xian hua

Plants annual, 30–60 cm tall. Stem erect, yellow-brown puberulent in upper part when young, hairs ± deciduous later, subglabrous, long naked in lower part, nodes turgid, sulcate when dry, glabrous, laxly branched. Leaves alternate; petiole 1–2.5 cm; leaf blade gray-green abaxially, dark green adaxially, ovate or ovate-lanceolate, (6–)7–11 × 2.5–4.5 cm, papery, abaxial midvein sparsely pilose or glabrate, adaxially strigose, lateral veins 5–7 pairs, curved, base broadly cuneate, attenuate into petiole, margin crenate-serrate, teeth glandular-mucronulate, apex long acuminate. Inflorescences in leaf axils in upper part of stem and branches, 3–5-flowered; peduncles erect or ascending, shorter than leaves, 3–5 cm. Pedicels 1–2 cm, bracteate at base; bracts persistent, green, broadly ovate, ca. 3 mm, thick, apex cuspidate. Flowers yellowish, purplish striate, 2.5–3 cm deep. Lateral sepals 2, orbicular, 0.8–1 cm in diam., membranous, reticulate veined, apex glandular mucronulate. Lower sepal broadly saccate, ca. 2 cm deep, abruptly constricted into an incurved spur 4–5 mm; mouth oblique, ca. 1.4 cm, tip acute. Upper petal suborbicular, ca. 1.5 cm in diam., abaxial midvein thickened, with horn-shaped crista at middle; lateral united petals not clawed, ca. 2.5 cm, 2-lobed; basal lobes suborbicular, ca. 1 cm wide; distal lobes broadly ovate, longer, apex obtuse. Filaments linear, 4–5 mm; anthers acute. Ovary linear. Capsule not seen. Fl. Jul–Aug.

• By streams, moist places in limestone valleys; ca. 2600 m. NW Yunnan.

28. *Impatiens hunanensis* Y. L. Chen, Acta Phytotax. Sin. 27: 402. 1989.

湖南凤仙花 hu nan feng xian hua

Plants annual, 30–60 cm tall. Stem erect, striate when dry, succulent, simple or branched, lower nodes turgid, with many fibrous roots, sparsely pilose in upper part. Leaves alternate; petiole 2.5–4 cm, slender; leaf blade greenish abaxially, green adaxially, ovate or ovate-lanceolate, 5–13 × 2.5–5 cm, membranous, abaxially pilose on veins, adaxially sparsely adpressed strigose, setose between teeth, midvein prominent, sparsely puberulent, lateral veins 5 or 6 pairs, curved, base attenuate into petiole, margin coarsely crenate or crenate-serrate, apex acuminate or shortly caudate. Inflorescences in upper leaf axils, racemose, laxly 3- or 4-flowered; peduncles conspicuously shorter than leaves, strict. Pedicels 5–10 mm, slender, bracteate at base; bracts persistent, triangular-ovate, 2–3 mm, fleshy, retuse, slightly obtuse. Flowers yellow, 2.5–3 cm in diam. Lateral sepals 2, obliquely ovate or suborbicular, thick, ca. 5 mm in diam., conspicuously 5- or 6-veined, apex mucronulate. Lower sepal saccate, ca. 3 cm deep, abruptly narrowed into a hooked or incurved spur 1–1.2 cm; mouth oblique, ca. 1.5 cm, tip acute. Upper petal orbicular, 1–1.2 cm in diam., apex retuse, mucronulate, abaxial midvein cristate, crista triangular, apically acute; lateral united petals ca. 2.5 mm, shortly stipitate; basal lobes orbicular; distal lobes dolabriform, larger, apex rounded; auricle inflexed, subovate. Filaments linear; anthers acute. Ovary fusiform, slightly curved, 3–4 mm. Capsule (immature) ca. 2.5 cm, clavate. Seeds many. Fl. Jun, fr. Jun–unknown.

• Forests, riversides, stony places in valleys; 700–800 m. Guangdong, Guangxi, Hunan, Jiangxi.

29. *Impatiens conchibracteata* Y. L. Chen & Y. Q. Lu, Acta Bot. Yunnan. 12: 26. 1990.

贝苞凤仙花 bei bao feng xian hua

Plants annual, 30–60 cm tall. Stem erect, many branched. Leaves alternate; petiole 1–2 cm; leaf blade ovate-elliptic, 5–8 × 2–3 cm, papery, abaxially hairy, lateral veins 5–7 pairs, base acute or subrounded, glandular, margin serrate, teeth mucronulate, apex acuminate. Inflorescences 1–3-flowered, one flower often abortive; peduncles 1–1.5 cm. Pedicels ca. 2 cm, bracteate at base; bracts persistent, conchiform or arcuate, ca. 3 mm, apex mucronulate. Flowers yellow, ca. 3.5 cm deep, ca. 2 cm in diam. Lateral sepals 2, brown when dry, orbicular, 6–8 mm in diam. Lower sepal deeply saccate, constricted into a curved, short spur; mouth oblique, acute. Upper petal suborbicular, 1–1.2 cm wide, abaxial midvein rostellate at middle; lateral united petals clawed, ca. 2.7 cm, 2-lobed; basal lobes orbicular, ca. 9 mm wide; distal lobes broadly dolabriform, large; auricle inflexed, suborbicular. Filaments flattened, ca. 5 mm; anthers ovoid, apex acute. Ovary erect, clavate. Capsule clavate, 2–2.5 cm, 3–5-seeded. Seeds brown-black, suborbicular, ca. 2 mm in diam. Fl. and fr. Aug–Sep.

• Forest understories, shaded moist places; 1800–2800 m. Sichuan (Emei Shan).

This species is closely related to *Impatiens duclouxii* but differs in having inflorescences 1–3-flowered, lateral sepals smaller, and leaves abaxially hairy.

30. *Impatiens longicornuta* Y. L. Chen, Acta Phytotax. Sin. 37: 93. 1999.

长角凤仙花 chang jiao feng xian hua

Plants annual, 40–60 cm tall, glabrous. Stem erect, robust, succulent, simple, lower nodes swollen, with many fibrous roots. Leaves alternate; petiole 1–2 cm; leaf blade gray-green abaxially, dark green adaxially, ovate or ovate-elliptic, 5–13 × 3–5.5 cm, membranous, abaxially glabrous, adaxially sparsely strigose, lateral veins 5–7 pairs, curved, base broadly cuneate, margin crenate-serrate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, racemose, large, 2- or 3(or 4)-flowered; peduncles shorter than leaves. Pedicels 1.5–2.5 cm, slightly elongate at fruiting, bracteate at base; bracts persistent, broadly ovate, 2–3 mm, apex mucronulate. Flowers spreading, yellow, 3.5–4 cm in diam. Lateral sepals 2, obliquely ovate or suborbicular, 3–3.5 mm, 3–5-veined, base inequilateral, apex mucronulate. Lower sepal deeply saccate, 3.2–3.5 cm deep, abruptly constricted into an incurved spur ca. 1 cm; mouth oblique, 2–2.2 cm, tip acuminate. Upper petal cucullate, elliptic-orbicular, ca. 2.2 × 1.4–1.5 cm, abaxial midvein conspicuously thickened, cristate, crista apically with a long cornu (horn) ca. 1 cm; lateral united petals clawed, 2.8–3 cm, 2-lobed; basal lobes broadly ovate, apex acute; distal lobes dolabriform; auricle inflexed, orbicular. Filaments linear, ca. 9 mm, apex swollen; anthers ovoid, apex acute. Ovary erect, fusiform, ca. 7 mm. Capsule (immature) clavate, 1.8–2 cm, rostellate. Fl. Oct.

• By streams in valleys. Hunan (Dong'an).

31. *Impatiens rubrostriata* J. D. Hooker, Hooker's Icon. Pl. 30: t. 2954. 1911 [“*rubro-striata*”].

红纹凤仙花 hong wen feng xian hua

Plants annual, 30–90 cm tall. Stem erect, succulent, smooth, branched. Leaves alternate; petiole 2–4 cm; leaf blade ovate, elliptic, or oblong, 5–10 × 3–6 cm, basal margin with few glands, lateral veins 5–8 pairs, base narrowly cuneate, margin coarsely crenate-serrate, apex caudate-acuminate. Inflorescences axillary, racemose, 3–5-flowered; peduncles short, 2–3 cm, slender. Pedicels 1–1.5 cm, slender, bracteate at base; bracts lanceolate, small, 1–2 mm, herbaceous. Flowers white, red striate, large, 4–5 cm deep. Lower sepal saccate, base narrowed into an incurved, short spur. Upper petal orbicular, abaxial midvein carinate; lateral united petals 1–1.4 cm, stipitate, 2-lobed; distal lobes dolabriform, large, apex obtusely rounded; basal lobes elliptic, apex obtuse; auricle inflexed, suborbicular. Anthers obtuse or ?acute. Capsule fusiform. Seeds orbicular, smooth. Fl. Jun–Jul, fr. Jul–Sep. $2n = 40^*$.

• Understories of sparse forests, thickets, by streams in valleys, grasslands, humid moist places; 1700–2600 m. Guangxi, Guizhou, Yunnan.

32. *Impatiens cyathiflora* J. D. Hooker, Hooker's Icon. Pl. 30: t. 2952. 1911.

金凤花 jin feng hua

Plants annual, 60–70 cm tall, with few supporting roots. Stem erect, robust, branched or simple, lower part glabrous, upper part and nodes yellow-brown glandular hairy. Leaves

alternate; petiole 1–2 cm, slender, with 1 pair of globose basal glands; leaf blade greenish abaxially, dark green adaxially, ovate-oblong or ovate-lanceolate, 10–13 × 3.5–4.5 cm, submembranous, glabrous, basally with few pairs of stipitate glands or glandular hairs, marginal teeth apically setose, lateral veins 3–5 pairs, curved, base cuneate, attenuate into petiole, margin crenate-serrate, apex acuminate or caudate-acuminate. Inflorescences terminal and in upper leaf axils, racemose, 6–10-flowered; peduncles shorter than or overtopping leaves, 6–8(–10) cm. Pedicels 1–1.5 cm, slender, bracteate at base; bracts persistent, ovate-lanceolate, 3–4 mm, membranous, apically glandular, long acuminate. Flowers yellow, red spotted, 3–3.5 cm deep. Lateral sepals 2, obliquely ovate or subtetragonous, 3–4 × 2–3 mm, thick, many veined, apex long glandular. Lower sepal cup-shaped or funnelform, 1.5–1.8 cm deep, narrowed into an incurved spur ca. as long as or longer than limb; mouth vertical, obtuse. Upper petal saccate, orbicular, ca. 1 cm in diam., apex obtuse, abaxial midvein slightly thickened; lateral united petals clawed, 2–2.5 cm, narrow, 2-lobed; basal lobes oblong-orbicular; distal lobes rotate, apex obtuse; auricle inflexed, small. Filaments linear; anthers ovoid, apex obtuse. Ovary erect, linear. Capsule clavate, 2–2.7 cm. Seeds many, brown, oblong or obovoid, ca. 3 mm, tuberculate. Fl. Aug–Sep, fr. Oct–Nov.

• Understories of mixed forests, moist places on slopes, grasslands; 1900–2300 m. Yunnan.

33. *Impatiens clavicuspis* J. D. Hooker ex W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 8: 337. 1915.

棒尾凤仙花 *bang wei feng xian hua*

Plants annual, 30–60 cm tall. Stem robust, with many adventitious roots, sparsely slender branched, naked in lower part, sulcate when dry, glabrous, with few glands in upper part. Leaves alternate; petiole 1–2 cm, with 1 pair of globose glands; leaf blade greenish abaxially, dark green adaxially, ovate-lanceolate or lanceolate, 7–12 × 2–3.5 cm, thin papery, both surfaces glabrous, setose between teeth, lateral veins 6–8 pairs, inconspicuous, base broadly cuneate, margin crenate-serrate, apex acuminate. Inflorescences erect, in upper leaf axils, racemose, 10–12-flowered; peduncles longer than petioles, 10–22 cm, slender. Pedicels 1–1.5 cm, elongate at fruiting, bracteate at base; bracts persistent, ovate, 3–5 mm, apex long glandular aristate or shortly acuminate. Flowers yellowish, purple tinged at apex, 2–2.5 cm. Lateral sepals 2, obliquely ovate, 4–5 mm, apex ca. 2 mm, glandular-aristate or shortly acuminate, many veined, abaxial midvein not thickened. Lower sepal saccate, ca. 2 cm deep, gradually narrowed into an incurved spur ca. 1 cm; mouth vertical, 1.6–1.7 cm wide, tip cuspidate. Upper petal suborbicular, ca. 1 cm in diam., apex acute, conspicuously cuspidate, abaxial midvein thickened; lateral united petals clawed, ca. 3 cm, 2-lobed; basal lobes suborbicular; distal lobes ca. 2 × as large as basal lobes, gradually narrowed. Filaments broadly linear; anthers ovoid, apex acute. Ovary linear. Capsules linear, 2–2.2 cm. Seeds few, shortly fusiform, ca. 2 mm. Fl. Jul–Aug, fr. Sep.

• Shaded moist places in valleys; 2400–2800 m. Yunnan [?Myanmar].

- 1a. Bracts and lateral sepals apically long glandular aristate 33a. var. *clavicuspis*
 1b. Bracts and lateral sepals apically shortly acuminate 33b. var. *brevicuspis*

33a. *Impatiens clavicuspis* var. *clavicuspis*

棒尾凤仙花(原变种) *bang wei feng xian hua* (yuan bian zhong)

Bracts and lateral sepals apically long glandular aristate.

• Shaded moist places in valleys; 2600–2700 m. Yunnan [?Myanmar].

33b. *Impatiens clavicuspis* var. *brevicuspis* Handel-Mazzetti, Symb. Sin. 7: 649. 1933.

短尖棒尾凤仙花 *duan jian bang wei feng xian hua*

Bracts and lateral sepals apically shortly acuminate.

• Shaded moist places in valleys; 2400–2800 m. Yunnan (Zhenkang).

34. *Impatiens loulanensis* J. D. Hooker, Hooker's Icon. Pl. 30: t. 2953. 1911.

路南凤仙花 *lu nan feng xian hua*

Plants annual, 50–80 cm tall. Stem erect, robust, branched in upper part, sparsely glandular hairy or glabrous. Leaves alternate; petiole 2–5 cm; leaf blade ovate-oblong or ovate-lanceolate, 7–18 × 2.5–5 cm, lateral veins 6–8 pairs, base cuneate, margin coarsely crenate or crenulate, apex acuminate. Inflorescences axillary; racemose, 5–13-flowered; peduncles 6–10 cm. Pedicels slender, bracteate at base; bracts ovate, apex glandular-aristate. Flowers yellow. Lateral sepals 2, broadly ovate, apex glandular-aristate. Lower sepal funnelform, narrowed into a curved, long spur. Upper petal orbicular, apex mucronulate, abaxial midvein carinate; lateral united petals ± clawed, 2-lobed; basal lobes suborbicular; distal lobes narrowly lanceolate. Anthers obtuse. Capsule linear. Fl. Aug–Sep.

• Forest understories, moist places in valleys, grasslands, along canals; 700–2500 m. Guizhou, Yunnan.

The whole plant is used medicinally for relaxing and activating the tendons and for treating injuries, trauma, and snakebites.

This species is closely related to *Impatiens pinetorum* J. D. Hooker ex W. W. Smith, which was (?erroneously) recorded from W Yunnan (Tengchong) in FRPS (47(2): 60–61. 2001). According to the protologue and a photograph of the type specimen, the bracts of that species are ovate, small, glandular aristate, and the lateral sepals apically shortly aristate. It seems to be similar to *I. loulanensis* but differs in having flowers smaller, ca. 2 cm, yellowish, red spotted, and lower sepal funnelform with a slender, erect spur longer than limb.

35. *Impatiens scutisepala* J. D. Hooker, Hooker's Icon. Pl. 30: t. 2955. 1911.

盾萼凤仙花 *dun e feng xian hua*

Plants annual, 50–100 cm tall, with many supporting roots, glabrous. Stem erect, robust, naked in lower part, branched in upper part; branches sulcate when dry. Leaves alternate,

appearing subverticillate, often crowded at upper parts of stem and branches, petiolate, uppermost leaves sessile or subsessile; petiole absent or 6–7 cm; leaf blade gray-green abaxially, dark green adaxially, ovate-lanceolate, rarely ovate-elliptic, (8–)10–16 × 3.5–7 cm, rigid, often with 1 pair of sessile globose basal glands, setose between teeth, lateral veins (7 or)8–10 pairs, curved, midvein conspicuous, base broadly cuneate, gradually attenuate into petiole, margin densely coarsely crenate, apex acuminate or caudate-acuminate. Inflorescences terminal or axillary, racemose, 8–13(–16)-flowered; peduncles overtopping or ca. as long as leaves, 8–16(–20) cm. Pedicels 1.5–2 cm, bracteate at base; bracts caducous, broadly ovate or ovate-lanceolate, 3–4 mm, membranous, apex scarcely mucronulate or cuspidate. Flowers yellow, upper petal and lateral united petals pink-purple spotted, 2–2.5 cm deep. Lateral sepals 2, yellow-green, obliquely orbicular or suborbicular, 7–8 mm in diam., ± leathery, many veined, midvein absent, apex hardly mucronulate. Lower sepal saccate, 2–2.5 cm, gradually narrowed into an incurved spur 1.5–1.8 cm; mouth subvertical, 8–10 mm wide, tip mucronulate. Upper petal deeply saccate, suborbicular, 8–10 mm in diam., abaxially rounded carinate, apex obtuse; lateral united petals not clawed, base broadly cuneate, 2–2.5 cm, 2-lobed; basal lobes orbicular, small; distal lobes dolabriform, ca. 2 × as large as basal lobes, apex obtuse-rounded; auricle narrow. Filaments short, ca. 4 mm; anthers ovoid, apex obtuse. Ovary fusiform. Capsule linear, 3–3.5 cm. Seeds many, brown, obovoid-oblong, ca. 4 mm, tuberculate. Fl. Aug–Sep.

- Mixed forests on slopes, alpine grassy slopes, by streams; 1800–3800 m. NW Yunnan.

This species differs from *Impatiens loulanensis* in having sepals yellow-green, obliquely orbicular or suborbicular, rigidly leathery when dry, abaxially striate; upper petal and basal lobes pink-purple spotted; and bracts caducous, broadly ovate, scarcely mucronulate.

36. *Impatiens cyanantha* J. D. Hooker, Hooker's Icon. Pl. 29: t. 2866. 1908.

蓝花凤仙花 lan hua feng xian hua

Plants annual, 20–70 cm tall. Stem erect, robust, branched. Leaves alternate; petiole 1–3 cm; leaf blade elliptic or lanceolate, 5–10 × 2–4 cm, base with 2 glands shortly clawed or sessile, setose between teeth, lateral veins 5 or 6 pairs, base cuneate, margin coarsely crenate-serrate, apex acuminate or caudate. Pedicels ca. 1 cm, slender; bracts caducous, small. Flowers blue or purple-blue, large, 2–5 cm deep. Lateral sepals 2, obliquely orbicular, inequilateral, leathery, base downward-saccate. Lower sepal saccate 1–1.6 cm deep, narrowed into a slender, incurved spur. Upper petal orbicular, small, midvein fine; lateral united petals 2-lobed; basal lobes orbicular, small; distal lobes dolabriform, apex rounded. Anthers obtuse. Capsule narrowly fusiform, ca. 2 cm. Seeds oblong, 3–5 mm. Fl. Jul–Sep, fr. Aug–Oct.

- Forest understories, along canals, shaded moist places, roadsides; 1000–2500 m. Guizhou, SE Yunnan.

The whole plant is used medicinally for relaxing and activating the tendons and for treating injuries and snakebites.

37. *Impatiens blinii* H. Léveillé, Cat. Pl. Yun-Nan, 120. 1916.

东川凤仙花 dong chuan feng xian hua

Plants annual, 40–80 cm tall, glabrous. Stem erect, simple or shortly branched in upper part. Leaves alternate; petiole long, 4–5 cm; leaf blade gray-green abaxially, dark green adaxially, ovate-lanceolate or ovate-oblong, 7–15 × 3–5 cm, membranous, with 2 globose basal glands, setose between teeth, lateral veins 7 or 8 pairs, base narrowly cuneate, attenuate into petiole, margin crenate-serrate, apex caudate, acuminate. Inflorescences in upper leaf axils, corymbose, 3- or 4-flowered; peduncles erect, overtopping leaves, red-purple, 5–8 cm. Pedicels 1–1.5 cm, slender, bracteate at base; bracts caducous, ovate, 2–3 mm. Flowers purple-violet, 3–3.5 cm deep. Lateral sepals 2, obliquely ovate or broadly ovate, 6–7 × ca. 5 mm, thick, abaxial midvein not thickened, 6- or 7-veined, apex cuspidate. Lower sepal broadly funnellform, ca. 1.5 cm deep, gradually narrowed into an erect spur 1.8–2 cm; mouth subvertical, 1.3–1.5 cm wide, tip acuminate. Upper petal broadly obovate, ca. 8 × 6–7 mm, abaxial midvein thickened, carinate, emarginate; lateral united petals not clawed, 1.5–1.8 cm, 2-lobed; basal lobes ovate, small; distal lobes oblong-dolabriform, ca. 2 × as long as basal lobes, apex obtuse; auricle orbicular. Filaments linear, 4–5 mm; anthers ovoid, apex obtuse. Ovary erect, linear, ca. 5 mm. Capsule linear, 2–2.5 cm. Seeds few, brown, oblong, ca. 2.5 mm. Fl. Sep–Oct.

- Forest margins, thickets, grassy slopes, shaded moist places in valleys; 2100–2800 m. Yunnan (Dongchuan, Lüchun).

38. *Impatiens purpurea* Handel-Mazzetti, Symb. Sin. 7: 649. 1933.

紫花凤仙花 zi hua feng xian hua

Plants annual, 40–70 cm tall, glabrous or sparsely stipitate glandular, with short, supporting roots. Stem erect, robust, simple or many branched. Leaves alternate, or crowded at upper parts of stem and branches and subverticillate, lower leaves long petiolate, upper leaves subsessile; leaf blade elliptic or lanceolate-elliptic, 5–15 × 3.5–4.5 cm, membranous, setose between teeth, lateral veins 6–9 pairs, curved, with stipitate glands, base cuneate, margin densely crenate, apex caudate-acuminate. Inflorescences in upper leaf axils, racemose, 4–6(–8)-flowered; peduncles shorter than leaves, 4–8 cm. Pedicels 1–2.5 cm, slender, bracteate at base; bracts persistent, broadly ovate or orbicular, 3–5 × 2–3 mm, membranous, hyaline, apex mucronulate. Flowers purple, 3.5–5 cm deep. Lateral sepals 2, broadly ovate, 4–5 mm, base subcordate, apex mucronulate. Lower sepal obliquely funnellform, limb ca. 1.5 cm deep, gradually narrowed into a mid-curved spur ca. 1.2 cm; mouth oblique, ca. 3 mm, mucronulate. Upper petal cucullate, orbicular, 8–9 mm, apex mucronulate, abaxial midvein thickened, carinate; lateral united petals not clawed, ca. 2 cm, 2-lobed; basal lobes obovate; distal lobes lanceolate, ca. as long as basal lobes. Filaments ligulate; anthers orbicular, apex obtuse. Ovary fusiform. Capsule linear-cylindric, 2.5–3 cm. Seeds many (ca. 15), brown, oblong, 3–4 mm, smooth. Fl. Aug–Sep, fr. Oct.

- Forest understories, by streams in valleys; 2400–3300 m. NW Yunnan.

39. *Impatiens pseudokingii* Handel-Mazzetti, Symb. Sin. 7: 646. 1933.

直距凤仙花 zhi ju feng xian hua

Plants annual, 50–90 cm tall, glabrous or subglabrous, base and lower part with few supporting roots. Stem erect, striate, robust. Leaves alternate, crowded at upper part, subverticillate, upper leaves sessile, lower leaves shortly petiolate; petiole shortly winged; leaf blade greenish abaxially, dark green adaxially, ovate or oblong, 9–15(–24) × 4–7 cm, membranous, setose between teeth, lateral veins 7–10(–13) pairs, obliquely curved, adaxially papillose-scabrid, base with scutiform or digitate glands, narrowly cuneate, gradually attenuate into petiole, margin densely crenate, apex long acuminate. Inflorescences in upper leaf axils, racemose, densely 8–12-flowered; peduncles shorter than or ca. as long as leaves, (6–)8–15 cm. Pedicels 1–2 cm, bracteate at base; bracts caducous, ovate, very small, apex acuminate. Flowers pale pink, yellow at throat, ca. 3 cm deep. Lateral sepals 2, ovate, broadly ovate, or orbicular, 7–8 mm, 5-veined, base oblique or subrounded, apex mucronulate. Lower sepal broadly funnelform, limb ca. 2 cm deep, abruptly constricted into an erect spur ca. 5 mm; mouth oblique, ca. 1.5 cm wide, tip rostellate. Upper petal 8–9 mm in diam., abaxial midvein thickened, narrowly carinate; lateral united petals not clawed, 2–2.2 cm, 2-lobed; basal lobes orbicular, base cuneate; distal lobes dolabriform, ca. as long as basal lobes, apex obtuse. Filaments linear, short; anthers obtuse. Capsule fusiform, 2.5–3 cm. Seeds few, globose, ca. 3 mm. Fl. Aug–Sep, fr. Oct.

• Mixed forests, forest margins, thickets along canals; 2000–2600 m. NW Yunnan.

40. *Impatiens dichroa* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 245. 1908.

二色凤仙花 er se feng xian hua

Plants annual, 30–40 cm tall, glabrous. Stem slender, flexuose. Leaves alternate; petiole 2–3 cm; leaf blade purple-brown abaxially, green adaxially, ovate or ovate-lanceolate, 5–10 × 2.5–3 cm, setose between marginal teeth, lateral veins 7–10 pairs, base attenuate into petiole, margin crenate or serrulate, apex acuminate. Inflorescences in middle or upper leaf axils, spreading, many flowered; peduncles 5–6 cm, stout. Pedicels fibrous, 1–1.5 cm, bracteate at base; bracts ?caducous, oblong-lanceolate, 3–5 mm. Flowers yellow, ca. 2 cm deep. Lateral sepals 2, oblong or ovate-oblong, 2–3 mm, midvein thick, apex obtuse. Lower sepal narrowly cornute, ca. 2 cm deep, gradually narrowed into a subreflexed, stout spur; mouth oblique, tip acute. Upper petal obovate-oblong, 5–6 mm, apex rounded, reflexed; lateral united petals not clawed, ca. 1.8 cm, 2-lobed; basal lobes oblong, apex obtuse; distal lobes linear, longer, apex obtuse; auricle inflexed. Filaments linear; anthers obtuse. Ovary curved. Capsule not seen. Fl. Aug.

• NE Yunnan.

41. *Impatiens sicutifer* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 246. 1908.

黄金凤 huang jin feng

Plants annual, 30–60 cm tall. Stem slender, simple or few branched. Leaves alternate, usually crowded at upper part of stem, upper leaves subsessile, lower leaves with petiole 1.5–3 cm; leaf blade ovate-lanceolate or elliptic-lanceolate, 5–13 × 2.5–5 cm, setose between teeth, lateral veins 5–11 pairs, base cuneate, margin crenate or coarsely crenate, apex acute or acuminate. Inflorescences in upper leaf axils, racemose, 5–8-flowered. Pedicels slender or stout, bracteate at base; bracts persistent, lanceolate. Flowers yellow or purple, ca. 3 cm deep. Lateral sepals 2, narrowly oblong, ca. 5 mm, membranous, slightly thickening on 1 side, 3–5-veined, apex cuspidate. Lower sepal narrowly funnelform, narrowed into an incurved or recurved, long spur, tip shortly rostellate. Upper petal suborbicular or orbicular, abaxial midvein thickened, narrowly winged; lateral united petals not clawed, 2-lobed; basal lobes subtriangular; distal lobes lorate. Anthers obtuse. Capsule clavate. Fl. Jul–Sep, fr. Oct–Nov.

• Dense forests, bamboo forests, mixed forests, grasslands on slopes, along canals, moist places; 800–2600 m. Fujian, ?Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, Yunnan.

- 1a. Leaves adaxially brown-purple, margin coarsely crenate; flowers ca. 2.5 cm; upper petal orbicular 41c. var. *mitis*
 1b. Leaves adaxially green, margin crenate; flowers smaller than 2.5 cm; upper petal suborbicular.
 2a. Flowers yellow; peduncles and pedicels slender 41a. var. *sicutifer*
 2b. Flowers purple, ca. 1.7 cm; peduncles and pedicels stout 41b. var. *porphyrea*

41a. *Impatiens sicutifer* var. *sicutifer*

黄金凤(原变种) huang jin feng (yuan bian zhong)

Flowers yellow. Peduncles and pedicels slender.

• Dense forests, grasslands on slopes, along canals, moist places; 800–2500 m. Fujian, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, Yunnan.

The stem is used medicinally to alleviate fever, remove toxic materials from the body, disperse phlegm, alleviate pain, and treat injuries and burns.

41b. *Impatiens sicutifer* var. *porphyrea* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 247. 1908.

紫花黄金凤 zi hua huang jin feng

Flowers purple, ca. 1.7 cm. Peduncles and pedicels stout.

• Grassy slopes. Guangxi, Hunan, Yunnan.

41c. *Impatiens sicutifer* var. *mitis* Lingelsheim & Borza, Repert. Spec. Nov. Regni Veg. 13: 388. 1914.

雅致黄金凤 ya zhi huang jin feng

Leaves adaxially brown-purple, margin coarsely crenate. Flowers ca. 2.5 cm. Lateral sepals apically thickened. Lower sepal narrowly funnelform; mouth mucronulate; spur ca. as long as limb. Upper petal orbicular.

• Bamboo forests, mixed forests; ca. 2600 m. NW Yunnan (Dali, Weixi).

42. *Impatiens dolichoceras* E. Pritzl, Bot. Jahrb. Syst. 29: 456. 1900.

长距凤仙花 chang ju feng xian hua

Plants annual, 50–80 cm tall, glabrous. Stem erect, robust, long naked in lower part, branched or simple, with few supporting roots. Leaves alternate; petiole winged; leaf blade pale green abaxially, sometimes turning purple when dry, green adaxially, oblong-ovate or oblong-lanceolate, 8–15 × 2.5–4.5 cm, membranous, both surfaces glabrous, setose between teeth, lateral veins 6–8 pairs, curved, base cuneate, attenuate into petiole, margin crenate, apex acuminate or caudate-acuminate. Inflorescences in upper leaf axils, racemose, 5–7-flowered; peduncles longer than petioles, 8–12 cm. Pedicels 1.5–2.5 cm, slender, bracteate at base; bracts persistent, green, ovate or ovate-lanceolate, 5–7 × 2–3 mm, hyaline margined, apex rounded. Flowers yellow, purple spotted, 2.5–3 cm deep. Lateral sepals 2, ovate, 4–5 × ca. 2 mm, apex mucronulate or apiculate. Lower sepal purple-red spotted, navicular, gradually narrowed into an incurved spur; spur long, ca. 1.5 cm, slender; mouth abruptly curved, tip acuminate. Upper petal navicular, shorter than lower sepal, apex rounded, abaxial midvein thickened, cristate; lateral united petals spotted, longer than upper petal, 2-lobed; basal lobes orbicular; distal lobes narrowly linear, apex acuminate. Filaments linear; anthers ovoid, apex obtuse. Ovary fusiform. Capsule ca. 2.5 cm. Fl. Jul–Sep, fr. Oct.

• Grasslands in valleys, shaded moist places by canals; 1200–2100 m. Chongqing (Nanchuan), W Hubei.

43. *Impatiens longipes* J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 4: 151. 1860.

长柄凤仙花 chang bing feng xian hua

Plants annual, 60–100 cm tall, glabrous. Stem erect, branched. Leaves alternate; petiole short, with 2 basal glands; leaf blade ovate-lanceolate, 5–9 × 2–3 cm, lateral veins 5–7 pairs, base cuneate, attenuate into petiole, margin crenate-serate, teeth mucronulate, apex long acuminate. Inflorescences axillary or subterminal, racemose, 3–5(–8)-flowered; peduncles erect or spreading, long, distinctly overtopping leaves, 3–5.3 cm, slender; bracts often caducous, subulate or subulate-lanceolate. Flowers yellow, ca. 2.5 cm deep. Lateral sepals small, 2(or 4), ovate-oblong, apex acuminate. Lower sepal funnelform, narrowed into a hooked, long spur; tip of mouth obtuse or slightly acute. Upper petal orbicular, apex mucronulate; lateral united petals not clawed; distal lobes narrowly linear, often flexuose. Capsule linear, 2–2.5 cm. Seeds oblong-ovoid, rugose. Fr. Sep.

Grasslands in valleys; ca. 4100 m. S Xizang (Yadong) [Bhutan, India].

44. *Impatiens stenantha* J. D. Hooker, Fl. Brit. India 1: 478. 1875.

窄花凤仙花 zhai hua feng xian hua

Impatiens angustiflora J. D. Hooker.

Plants annual, 30–60 cm tall. Stem erect, many branched or simple, glabrous. Leaves alternate; petiole 1–3.5 cm; leaf

blade elliptic-ovate or elliptic-lanceolate, 7–15 × 3–5 cm, with 2 stipitate basal glands, both surfaces glabrous, setose between teeth, lateral veins 7–9 pairs, base cuneate, attenuate into petiole, margin coarsely crenate, apex acute or caudate-acuminate. Inflorescences axillary or terminal, 3–5-flowered; peduncles usually shorter than leaves, slender. Pedicels slender, bracteate at base; bracts often caducous, ovate-lanceolate. Flowers yellow or spotted; buds subovoid, apex rostellate. Lateral sepals 2, oblong-lanceolate, small, ca. 4 mm × 2.5–4.5 mm, apex acuminate. Lower sepal funnelform, narrowed into a slightly curved, slender spur; mouth oblique, tip cornute-rostellate. Upper petal orbicular, abaxial midvein not thickened; lateral united petals not clawed; basal lobes ovate-oblong; distal lobes long, narrow, apex acute or obtuse; auricle inflexed. Anthers obtuse. Ovary fusiform. Capsule unknown. Fl. May–Jul. $2n = 18$.

Understories of mixed forests on slopes, thickets; 2400–3000 m. Xizang, NW Yunnan [Bhutan, India, Nepal].

Impatiens angustiflora reportedly differs in having bracts that are persistent and lateral united petals that are very broad; however, it seems very difficult to separate the species based on the proposed differences.

45. *Impatiens principis* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 246. 1908.

澜沧凤仙花 lan cang feng xian hua

Plants annual, 25–30 cm tall, glabrous. Stem erect or obliquely ascending, simple or shortly branched from lower part. Leaves alternate or subverticillate, sessile, subsessile, or petiolate; petiole absent to 1–2 cm; leaf blade pale purple-tinged abaxially, dark green adaxially, ovate or ovate-lanceolate, 3–5(–7) × 2–2.5 cm, rigid, lateral veins 6 or 7 pairs, curved, midvein and lateral veins abaxially conspicuous, base cuneate, shortly attenuate into petiole, margin crenate, teeth mucronulate, apex acuminate or caudate-acuminate. Inflorescences in upper leaf axils, racemose, usually 3–5-flowered; peduncles erect, longer or ca. as long as leaves, 5–6(–7) cm. Pedicels fibrous, 1–1.5 cm, bracteate at base; bracts caducous, linear-subulate, 2–3 mm. Flowers yellow, ca. 2 cm deep. Lateral sepals 2, ovate, hooked-curved, 2–4 mm, apex elongated into awn 3–4 mm. Lower sepal navicular, limb ca. 1 cm deep, base abruptly narrowed into a slender spur 2–2.5 cm; mouth oblique, 5–6 mm wide, tip 5–6 mm, fibrous, sometimes involute aristate. Upper petal obovate, 7–8 mm, apex rounded; lateral united petals ca. 1.8 cm, 2-lobed; basal lobes long acuminate; distal lobes linear, slightly dilated at base, apex obtuse; auricle small, narrow. Filaments linear; anthers obtuse. Ovary erect, fusiform. Capsule (immature) clavate, ca. 1 cm. Fl. Jul–Aug.

• By streams and along canals on slopes; 1700–2000 m. NW Yunnan.

This species is similar to *Impatiens siculifer* and *I. drepanophora* but differs in having lateral sepals hooked-curved; lower sepal with mouth tip fibrous, long aristate; and bracts caducous, subulate.

46. *Impatiens drepanophora* J. D. Hooker, Rec. Bot. Surv. India 4: 17. 1905.

镰萼凤仙花 lian e feng xian hua

Plants robust, ca. 100 cm tall. Stem terete, branched, glabrous. Leaves alternate; petiole to 5 cm; leaf blade ovate-lanceolate, 6–13 × 2–4 cm, with 2 stipitate basal glands, glabrous, lateral veins 7–9 pairs, base cuneate, apex acuminate. Inflorescences axillary or subterminal, racemose, 5–10-flowered; peduncles spreading, 7–10(–15) cm. Pedicels 1.5–2 cm, slender, bracteate at base; bracts caducous, green, ovate-lanceolate, apex mucronulate to cuspidate, glandular. Flowers yellow, ca. 3.5 cm deep; buds ovoid. Lateral sepals 2, greenish, falcate, ca. 2 mm, apex long aristate. Lower sepal constricted into an involute-incurved spur; tip green, long cornute. Upper petal orange, slightly spurred; lateral united petals clawed; basal lobes red spotted, narrowly oblong; distal lobes oblong-dolabriform. Capsule clavate. Fl. Aug.

Understories of evergreen forests on slopes, by streams; 2000–2200 m. Xizang (Médog, Pamo), Yunnan [Bhutan, India, Myanmar, Nepal].

47. *Impatiens ruihensis* S. Akiyama & H. Ohba, J. Jap. Bot. 70: 99. 1995.

瑞丽凤仙花 rui li feng xian hua

Plants annual, 40–60 cm tall, glabrous. Stem erect, usually purple-tinged, branched. Leaves alternate, petiolate; leaf blade broadly elliptic to ovate, 7–13 × 3–6 cm, with 1 or 2 pairs of stipitate basal glands, both surfaces nearly glabrous, setose between teeth, lateral veins 7 or 8 pairs, base cuneate, narrowed, margin crenate, apex acute. Inflorescences in upper leaf axils of stem and branches, racemose, 5–12-flowered; peduncles erect or ascending, 6–12 cm. Pedicels 1.5–2 cm, slender, glabrous, bracteate at base; bracts caducous, navicular-ovate, 0.8–1 cm, apex aristate. Flowers yellowish, small, 1.5–2 cm deep. Lateral sepals 2, falcate-elliptic, ca. 2 mm, apex aristate. Lower sepal navicular, narrowed into an erect or curved spur; spur ca. 3 cm, slender. Upper petal yellowish, slightly cucullate, obovate, ca. 8 × 6 mm, abaxial midvein carinate; lateral united petals not clawed, yellowish, reddish spotted, ca. 1.8 cm, 2-lobed; basal lobes obtriangular, ca. 9 × 3 mm, apex rounded; distal lobes narrowly curved-lanceolate, ca. 14 × 5 mm, apex slightly rounded; auricle absent or very narrow. Filaments linear; anthers obtuse. Ovary fusiform, glabrous. Capsule not seen. Fl. May. $2n = 18^*$.

• Understories of dense forests in valleys, on moist slopes; 700–1400 m. W Yunnan.

48. *Impatiens ceratophora* H. F. Comber, Notes Roy. Bot. Gard. Edinburgh 18: 245. 1934.

具角凤仙花 ju jiao feng xian hua

Plants annual, to 1 m tall, glabrous. Stem erect, nearly simple. Leaves alternate, upper leaves subverticillate, subsessile; petiole to 4 cm; leaf blade greenish and shiny abaxially, dark green adaxially, lanceolate or elliptic-lanceolate, ca. 13 × 4 cm, membranous, setose between teeth, lateral veins 8–11 pairs, base narrow, margin crenate-serrate, apex acuminate. Inflorescences in upper leaf axils, 8–20-flowered; peduncles usually overtopping leaves, slender. Pedicels fibrous, 1–2 cm, bracteate at base; bracts persistent, linear, ca. 3 mm. Flowers yellowish, purple spotted, ca. 2.5 cm deep. Lateral sepals 2, obliquely

orbicular, curved-veined, apex acuminate or aristate. Lower sepal cup-shaped, narrowed into an incurved or involute, clavate spur; mouth tip gradually narrowed downward and long cuspidate or aristate. Upper petal orbicular, cup-shaped; lateral united petals not clawed, ca. 2.5 cm, 2-lobed; basal lobes obliquely broadly ovate, apex acute; distal lobes obliquely elliptic, ca. 2 × as long as basal lobes, apex acuminate. Filaments linear, ca. 5 mm; anthers obtuse. Ovary fusiform. Capsule linear, ca. 2.5 cm. Fl. Aug–Sep.

Understories of mixed forests, along canals, moist places; 1700–2700 m. NW Yunnan [Myanmar].

49. *Impatiens tenuibracteata* Y. L. Chen, Acta Phytotax. Sin. 18: 380. 1980.

膜苞凤仙花 mo bao feng xian hua

Plants annual, 25–50 cm tall. Stem erect, slender, branched or simple, glabrous. Leaves alternate, petiolate; leaf blade ovate or ovate-lanceolate, 2.5–8 × 1.5–3.5 cm, membranous, setose between teeth, base cuneate, margin coarsely crenate, apex acuminate. Inflorescences in upper leaf axils or terminal, racemose, 8–13-flowered; peduncles conspicuously overtopping leaves, slender. Pedicels 1.5–2 cm, slender; bracts caducous, ovate or broadly ovate, 4–5 mm, membranous, 5–7-veined, apex retuse, long mucronulate or cuspidate. Flowers purple, ca. 2 cm. Lateral sepals 2, ovate, 5–6 mm, long mucronulate. Lower sepal purple spotted, narrowly funnelliform, narrowed into an involute, curved, long spur; mouth oblique, tip cornute, ca. 4 mm. Upper petal orbicular, ca. 6 mm in diam., abaxial midvein carinate, apex mucronulate; lateral united petals not clawed, 2-lobed; basal lobes subovate; distal lobes narrowly lorate. Anthers obtuse. Capsule linear, to 2 cm. Fl. Aug.

• Forest margins along roadsides; 2100–2300 m. SE Xizang (Médog).

50. *Impatiens medogensis* Y. L. Chen, Acta Phytotax. Sin. 18: 381. 1980.

墨脱凤仙花 mo tuo feng xian hua

Plants annual, 5–20 cm. Stem procumbent or ascending, slender, lower nodes dilated, with fibrous roots, simple, rarely branched, glabrous. Leaves alternate; petiole 3–25 mm, with fibrous glands at base; leaf blade greenish abaxially, green adaxially, ovate or elliptic-ovate, 2–3.5(–5) × 1–3 cm, membranous, setose between teeth, lateral veins 5 pairs, base cuneate, margin coarsely crenate, apex obtuse or slightly acute. Inflorescences in upper leaf axils, 1- or 2(or 3)-flowered; peduncles shorter than leaves, slender. Bracts caducous, ovate-lanceolate, small, ca. 2 mm. Flowers pink, 1.5–2 cm deep. Lateral sepals 2, ovate, ca. 2 mm, apex mucronulate. Lower sepal narrowly funnelliform, gradually narrowed into an incurved spur; mouth oblique, tip rostellate. Upper petal suborbicular, ca. 6 mm in diam., apex mucronulate, abaxial midvein narrowly carinate; lateral united petals not clawed, 2-lobed; basal lobes suborbicular, small; distal lobes dolabriform; auricle narrow, inflexed. Anthers obtuse. Ovary fusiform. Capsule unknown. Fl. Jul–Aug.

• Stony slopes; ca. 3200 m. SE Xizang (Médog).

51. *Impatiens microcentra* Handel-Mazzetti, Symb. Sin. 7: 653. 1933.

小距凤仙花 xiao ju feng xian hua

Plants perennial, 20–30 cm tall; rhizome procumbent, glabrous. Stems many, ascending or curved, purple, simple or branched. Leaves alternate, subsessile, lower leaves small, withering early, upper leaves crowded, subverticillate; leaf blade yellow-brown abaxially when dry, dark green adaxially, elliptic or ovate-elliptic, 5–9 × 2–3.5 cm, membranous, abaxially with stipitate fusiform glands, setose between teeth, adaxially scabrid, lateral veins 5 or 6 pairs, base cuneate, narrowed, margin coarsely crenate, nearly entire basally, apex shortly acuminate or obtuse. Inflorescences in upper leaf axils, 1- or 2(or 3)-flowered; peduncles erect, shorter than leaves, 2–3 cm. Pedicels shortly bracteate at base or above; bracts ovate, 2–3 mm, membranous, apex emarginate, retuse, mucronulate. Flowers pink-purple, 2–2.5 cm deep. Lateral sepals 2, green, oblong-ovate, 3–4 mm, base oblique, apex rigidly mucronulate. Lower sepal funnellform, dilated at middle, 1.5–1.7 cm deep, narrowed into an erect, subglobose spur; mouth oblique, rostellate, nearly as long as limb, 5–6 mm wide. Upper petal broadly ovate, 8–9 mm, abaxial midvein thickened, narrowly carinate, green, mucronulate; lateral united petals not clawed, ca. 2 cm, 2-lobed; basal lobes ovate-orbicular, large; distal lobes lorate, longer, narrower, apex obtuse; auricle small. Filaments ligulate; anthers obtuse. Capsule not seen. Fl. Aug–Sep.

- Forest understories; 2300–3500 m. NW Yunnan (Nu Jiang).

52. *Impatiens holocentra* Handel-Mazzetti, Symb. Sin. 7: 647. 1933.

同距凤仙花 tong ju feng xian hua

Plants annual, 30–50 cm tall. Leaves alternate, often crowded at apices of stem and branches; petiole 1–2.5 cm; leaf blade oblong-ovate or oblong-lanceolate, 5–17 × 2.5–4 cm, setose between teeth, lateral veins 7–11 pairs, base cuneate, margin coarsely crenate, apex caudate-acuminate. Inflorescences axillary, racemose, 4–6-flowered; peduncles 6–8 cm. Pedicels 2–2.5 cm, bracteate at middle; bracts caducous, linear. Flowers yellow, small. Lateral sepals 4; outer 2: broadly ovate, apex acute; inner 2: linear, minute. Lower sepal narrowly funnellform, narrowed into an erect, slender spur; mouth tip rostellate. Upper petal obovate, apex mucronulate, abaxial midvein not carinate; lateral united petals ± clawed, 2-lobed; basal lobes triangular, apex acuminate; distal lobes lanceolate, longer; auricle small. Anthers obtuse. Capsule linear. Fl. and fr. Jul–Oct.

Shaded moist places in subalpine valleys, by streams; 2700–2800 m. NW Yunnan [NE Myanmar].

53. *Impatiens tongbiguanensis* S. Akiyama & H. Ohba, J. Jap. Bot. 70: 102. 1995.

铜壁关凤仙花 tong bi guan feng xian hua

Plants annual, 30–40 cm tall, glabrous. Stem erect, simple or axillary, hidden buds inconspicuous in upper part. Leaves alternate, remote; petiole 1–1.5 cm, or upper leaves sessile; leaf blade linear-elliptic, 13–18 × 1–1.5 cm, glabrous, lateral veins 7

or 8 pairs, base gradually narrowed, margin shallowly crenate, apex acute. Inflorescences in upper leaf axils, 8–12-flowered; peduncles erect or obliquely ascending, shorter than leaves, 5–8 cm, glabrous. Pedicels 1.5–2 cm, slender, bracteate at base; bracts caducous, navicular, ovate, 0.6–1 cm, apex acute. Flowers yellow, ca. 2.5 cm, ca. 3.5 cm deep. Lateral sepals 4; outer 2: falcate-elliptic, ca. 6 mm, apex acute; inner 2: linear-subulate, ca. 3 mm, membranous. Lower sepal yellow, limb navicular, ca. 1.4 cm, ca. 3.2 cm deep, narrowed into a curved spur. Upper petal cucullate, bent, broadly elliptic, ca. 1.2 × 0.8 cm, abaxial midvein not cristate; lateral united petals yellow, with reddish spots, 2-lobed; basal lobes broadly lanceolate or narrowly ovate, ca. 1.2 × 0.6 mm, apex rounded; distal lobes lanceolate, ca. 1.4 × 0.5 cm, apex rounded; auricle absent. Filaments linear; anthers obtuse. Capsule not seen. Fl. Oct. $2n = 18^*$.

- Understories of broad-leaved forests, riverbanks, shaded moist places; 1000–1400 m. W Yunnan (Yingjiang).

54. *Impatiens maguanensis* S. Akiyama et al., Bull. Natl. Sci. Mus., Tokyo, Ser. B, 22: 138. 1996.

马关凤仙花 ma guan feng xian hua

Plants ?annual, ca. 40 cm tall. Leaves alternate, somewhat crowded at upper part of stem, petiolate or nearly sessile in upper leaves; petiole 2–3.5 cm; leaf blade broadly elliptic, 8–11 × 4–6 cm, both surfaces nearly glabrous, base cuneate, margin crenate, apex acute. Inflorescences in upper leaf axils, ascending, racemose, 2–4-flowered; peduncles ca. 4 cm, glabrous. Pedicels 1.5–2 cm, glabrous, bracteate at base; bracts caducous, narrowly ovate, ca. 5 mm. Flowers yellow, ca. 3 cm, ca. 4 cm deep. Lateral sepals 4; outer 2: ovate, apex acute, 8–9 mm; inner 2: narrowly ovate, ca. 4 mm, membranous. Lower sepal yellow, navicular, narrowed into a long straight (rarely slightly curved) spur, ca. 1.2 cm, ca. 3.2 cm deep including spur; mouth tip apiculate. Upper petal ovate, ca. 1.2 × 0.8 cm, apex slightly rostellate, abaxial midvein not carinate; lateral united petals yellow, ca. 2.8 cm, 2-lobed; basal lobes narrowly ovate to narrowly elliptic, 1.3–1.4 cm × 3–4 mm, apex rounded; distal lobes falcate, 1.8–2 cm × ca. 3 mm, apex rounded; auricle inflexed, narrow. Anthers obtuse. Ovary glabrous. Capsule ?linear. Fl. Aug. $2n = 18^*$.

- Forests; 1900–2500 m. SW Yunnan.

55. *Impatiens luchunensis* S. Akiyama et al., Bull. Natl. Sci. Mus., Tokyo, Ser. B, 22: 138. 1996.

绿春风仙花 lü chun feng xian hua

Plants ?annual, ca. 40 cm tall. Leaves alternate, petiolate or sessile in upper leaves; petiole 2–3 cm; leaf blade elliptic, 6–9 × 2.5–3 cm, both surfaces nearly glabrous, base cuneate, margin crenate, apex acute. Inflorescences in upper leaf axils, ascending, racemose, 1- or 2-flowered; peduncles 1.5–3 cm, glabrous. Pedicels 1–1.2 cm, glabrous, bracteate at base; bracts not caducous, ovate, ca. 4 mm. Flowers yellow, ca. 2 cm, ca. 2.5 cm deep. Lateral sepals 4; outer 2: ovate, ca. 4 mm, apex acute; inner 2: minute, ca. 1 mm, membranous. Lower sepal yellow, navicular, narrowed into a long recurved spur, ca. 1 cm, ca. 2.6 cm deep including spur; mouth tip acute. Upper petal slightly

cucullate, ovate, ca. 9×7 mm, apex slightly rostellate, abaxial midvein not carinate; lateral united petals yellow, ca. 1.9 cm, 2-lobed; basal lobes ovate, ca. 9×4 mm; distal lobes curved, narrowly elliptic, ca. 1.4×0.3 cm, apex rounded; auricle slightly inflexed, narrow. Anthers obtuse. Capsule ?linear. Fl. Oct. $2n = 18^*$.

- Forests; 1900–2500 m. SW Yunnan.

56. *Impatiens taronensis* Handel-Mazzetti, Symb. Sin. 7: 652. 1933.

独龙凤仙花 du long feng xian hua

Plants perennial, with procumbent rhizome and fibrous roots, glabrous. Stem erect or obliquely ascending, green or purple-tinged in upper part, 15–30 cm, simple or shortly branched at middle, naked in lower part. Leaves alternate, subverticillate on upper stem, subsessile or shortly petiolate; petiole to ca. 5 mm; leaf blade gray-green abaxially, sometimes becoming purple, green adaxially, oblong-ovate, or lanceolate, $4-10 \times 1.5-2$ cm, membranous, adaxially scurfy-strigose on veins, setose between teeth, lateral veins 6–8-pairs, base cuneate, attenuate into petiole, margin densely or coarsely crenate, teeth mucronulate or glandular, apex long acuminate. Inflorescences in upper leaf axils, 1- or 2(or 3)-flowered; peduncles erect, shorter than leaves, 2–4(–5) cm, slender. Pedicels 1–1.4 cm, bracteate at base; bracts persistent, ovate-lanceolate, ca. 3 mm, membranous. Flowers purple, 2–3 cm deep. Lateral sepals 4; outer 2: ovate, 2–3 mm, submembranous, base oblique, apex mucronulate; inner 2: linear, minute, with apical glands. Lower sepal narrowly funnellform, limb ca. 1.5 cm deep, gradually narrowed into an erect or slightly curved spur; mouth oblique, 6–7 mm wide, tip long mucronulate. Upper petal 5–7 \times 5–6 mm, apex retuse, abaxial midvein not carinate; lateral united petals not clawed, 1.4–1.5 cm, 2-lobed; basal lobes spreading, triangular, rounded; distal lobes narrowly lanceolate, longer, apex acute, often retuse; auricle small. Filaments linear, ca. 1.5 mm; anthers obtuse. Ovary fusiform. Capsule linear, ca. 1.5 cm. Seeds many. Fl. Aug–Sep, fr. Oct.

- By streams, shaded moist places, stony slopes; 2800–3700 m. NW Yunnan (Dulong Jiang, Gongshan).

57. *Impatiens porphyrea* Toppin, Bull. Misc. Inform. Kew 1920: 363. 1920.

紫色凤仙花 zi se feng xian hua

Plants ?annual, 1–2 m tall. Leaves alternate, somewhat crowded at upper part of stem, petiolate or sessile in upper leaves; petiole 0.5–2 cm; leaf blade elliptic, ovate, or lanceolate, $7-15 \times 2.5-6$ cm, both surfaces nearly glabrous, base cuneate, margin crenate, apex acute. Inflorescences in upper leaf axils, ascending, racemose, 3–5-flowered, or 1-flowered; peduncles 3–5 cm, glabrous. Pedicels ca. 2 cm, glabrous, bracteate at base; bracts persistent, ovate, 3–4 mm, apex acute. Flowers dark red-purple, ca. 2 cm, ca. 3 cm deep. Lateral sepals 4; outer 2: navicular, ovate or lanceolate, 4–5(–8) mm, apex acute; inner 2: minute, shorter than 1 mm, membranous. Lower sepal dark red-purple, navicular, narrowed into a slightly recurved spur ca. 1.3 cm, ca. 2.5 cm deep including spur; mouth tip rostellate. Upper

petal slightly cucullate, orbicular, ca. 1 cm in diam., apex slightly retuse, abaxial midvein slightly carinate; lateral united petals dark red-purple, ca. 2 cm, 2-lobed; basal lobes oblong-orbicular to orbicular, ca. 1.2×0.5 cm, apex rounded; distal lobes loriform, ca. 1.2×0.3 cm, apex rounded; auricle inflexed, narrowly lunate. Anthers obtuse. Capsule linear. Fl. Oct. $2n = 18$.

- Forests; 1700–1900 m. SW Yunnan [N Myanmar].

One of us (Chen) noted that according to the description and illustration, this species seems to be similar to *Impatiens taronensis*.

58. *Impatiens furcillata* Hemsley, J. Linn. Soc., Bot. 23: 101. 1886.

东北凤仙花 dong bei feng xian hua

Plants annual, 30–70 cm tall. Stem erect, slender, simple or branched, sparsely glandular hairy in upper part. Leaves alternate; petiole 1–2.5 cm; leaf blade rhombic-ovate or rhombic-lanceolate, $5-13 \times 2.5-5$ cm, lateral veins 7–9 pairs, base cuneate, margin sharply serrate, apex acuminate. Inflorescences axillary, racemose, 3–9-flowered; peduncles 3–5 cm, sparsely dark brown glandular hairy. Pedicels slender, bracteate at base; bracts linear. Flowers yellow or pale purple, small. Lateral sepals 2, ovate, cuspidate. Lower sepal funnellform, abruptly elongated into an involute, long spur. Upper petal orbicular, apex shortly rostellate, abaxial midvein carinate; lateral united petals clawed, 2-lobed; basal lobes subovate, apex acute; distal lobes obliquely ovate, larger, apex acute. Anthers obtuse. Capsule subcylindric. Fl. and fr. unknown.

- Forest margins, grasslands in valleys, riversides; 700–1100 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol [Korea, Russia (Far East)].

59. *Impatiens textorii* Miquel, Ann. Mus. Bot. Lugduno-Batavi 2: 76. 1865 [“*textori*”].

野凤仙花 ye feng xian hua

Impatiens japonica Franchet & Savatier.

Plants annual, (30–)40–70(–100) cm tall. Stem erect, usually reddish tinged, many branched, with red-purple glandular hairs on branchlets and peduncles. Leaves alternate or subverticillate at upper parts of stem and branches, upper leaves smaller and subsessile; petiole to 5 cm; leaf blade pale green abaxially, green adaxially, rhombic-ovate to ovate-lanceolate, rarely broadly lanceolate, $3-14 \times 3-7$ cm, abaxially glabrous or veins with multicellular hairs, adaxially glabrous or nearly so, lateral veins 7 or 8 pairs, base cuneate, slightly obtuse in upper leaves, rarely obtuse-rounded, margin sharply serrate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, 4–10-flowered; peduncles ascending, 3–10 cm. Pedicels 1–2 cm, slender, bracteate at base; bracts ovate-lanceolate to triangular-ovate, 3–5 mm. Flowers purplish or purple-red, purple spotted, large, 2.5–4 cm deep. Lateral sepals 2, dark purple-red, broadly ovate, $0.6-1 \times 0.4-0.6$ cm, apex acute. Lower sepal dark purple spotted and yellowish, campanulate-funnelform, 2.5–3 cm deep, gradually narrowed into an involute spur; mouth oblique, 1.5–1.8 cm, tip acuminate. Upper petal ovate-tetragonous to obovate, ca. 1.2 cm wide, apex mucronulate, abaxial midvein carinate;

lateral united petals clawed, ca. 2 cm, 2-lobed; basal lobes ovate or ovate-oblong, apex curved, acuminate; distal lobes ovate to oblong-dolabriform. Filaments linear, 3–4 mm; anthers ovoid, apex obtuse. Ovary erect, fusiform. Capsule fusiform-cylindric, 1–1.8 cm. Seeds brown, few, elliptic, ca. 4 mm, tuberculate. Fl. Aug–Sep.

By streams, along canals; 1000–1100 m. Jilin, Liaoning, Shandong [Japan, Korea, Russia (Far East)].

Impatiens textorii f. *pallescens* (Honda) H. Hara (*Impatiens textorii* var. *pallescens* Honda) differs in having a white flower and a purple spotted lower sepal.

60. *Impatiens aquatilis* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 247. 1908.

水凤仙花 shui feng xian hua

Impatiens tongchouenensis H. Léveillé.

Plants annual, 30–50 cm tall, glabrous. Stem erect, green or purple-tinged, long naked in lower part, nodes swollen with few adventitious roots, sparsely glandular hairy in upper part, simple or sometimes shortly branched from lower part. Leaves alternate, crowded at upper part of stem, shortly petiolate or sessile; petiole 5–15 mm, with 2 stipitate glands at base; leaf blade pale green or becoming purple when dry abaxially, green adaxially, lanceolate or ovate-lanceolate, or ovate-oblong, 5–12 × 1.5–2.5 cm, rigidly papery, setose between teeth, lateral veins 6–8 pairs, base attenuate into petiole, margin crenate-serrate or serrulate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, 6–10-flowered; peduncles erect, over subtending leaves, 7–12 cm, stout. Pedicels 1–1.5 cm, slightly elongate at fruiting, bracteate at base; bracts caducous, ovate-oblong, 5–6 × 2–3 mm, membranous, apex acuminate. Flowers pink-purple, large, 3.5–4 cm deep. Lateral sepals 2, obliquely ovate or ovate, 8–10 mm, apex rounded, cuspidate. Lower sepal incurved, shortly saccate, 3–3.5 cm deep, narrowed into an incurved spur ca. 2 cm; mouth vertical or oblique, 1–1.2 cm wide, tip rostellate. Upper petal orbicular or oblate, 1–1.5 cm in diam., apex mucronulate, abaxial midvein not thickened; lateral united petals not clawed, 2–2.5 cm; basal lobes orbicular; distal lobes ca. 2 × as long as basal lobes, below middle enlarged, downward becoming narrow; auricle small. Filaments linear, 2–3 mm; anthers obtuse. Ovary erect, fusiform, ca. 3 mm. Capsule linear, 1.5–2 cm. Seeds few, brown, oblong, 2–3 mm, tuberculate. Fl. Aug–Sep, fr. Oct.

• Lakesides, riversides, shaded moist places; 1500–3000 m. Yunnan.

61. *Impatiens uliginosa* Franchet, *Bull. Soc. Bot. France* 33: 448. 1886.

滇水金凤 dian shui jin feng

Plants annual, 60–80 cm tall, glabrous. Stem erect, robust, lower nodes swollen, with adventitious roots; branchlets spreading, short. Leaves alternate, sessile; petiole with 1 pair of globose basal glands; leaf blade pale green or becoming purple when dry abaxially, dark green adaxially, lanceolate or narrowly lanceolate, 8–19 cm, membranous, with few stipitate glands at base, lateral veins 6–8 pairs, mucronulate. Inflores-

cences often in upper leaf axils, subcorymbose, 3–5-flowered; peduncles shorter than leaves, 8–9 cm. Pedicels 1–1.5 cm, slender, bracteate at base; bracts caducous, ovate, 4–5 mm, apex acuminate. Flowers red, 2.5–3 cm deep. Lateral sepals 2, obliquely ovate-orbicular, ca. 5 × 3 mm, multiveined, apex acuminate. Lower sepal funnellform, limb 1.4–1.5 cm deep, narrowed into an incurved spur subequal to limb; mouth oblique, 1.3–1.5 cm wide, tip acute. Upper petal orbicular, 1–1.1 cm in diam., apex cuspidate, abaxial midvein thickened, cristate; lateral united petals not clawed, short, ca. 1.5 cm; basal lobes rounded; distal lobes semilunar, ca. 2 × as long as basal lobes, apex narrowed; auricle small. Filaments linear, ca. 3 mm; anthers small, apex obtuse. Ovary erect, fusiform. Capsule subcylindric, 1.5–2 cm. Seeds few, black, oblong, 4–5 mm. Fl. Jul–Aug, fr. Sep. $2n = 18^*$.

• Forest understories, along canals, by streams, shaded moist places; 1500–2600 m. Yunnan.

62. *Impatiens tsangshanensis* Y. L. Chen, *Acta Phytotax. Sin.* 16(2): 44. 1978.

苍山凤仙花 cang shan feng xian hua

Plants annual, small, 15–20 cm tall. Stem purple, slender, succulent, many branched from base; stem, branches, and peduncles deep purple spotted. Leaves sessile or shortly petiolate; petiole with 2 sessile basal glands; leaf blade abaxially greenish, inconspicuously purple spotted, ovate or ovate-lanceolate, 1–2 cm × 5–8 mm, rigidly papery, lower part with 2 or 3 pairs of ciliate stipitate glands, lateral veins 3 or 4 pairs, base narrowly cuneate, margin crenate-serrate or serrulate, apex slightly acute or shortly acuminate. Inflorescences in upper leaf axils, 1(or 2)-flowered, sometimes with abortive flowering bud; peduncles often overtopping leaves. Pedicels 5–7 mm, bracteate at base; bracts caducous, ovate, ca. 2 mm. Flowers purple, ca. 2 cm deep. Lateral sepals 2, obliquely ovate-orbicular, ca. 3 × 2.5 mm, abaxially thickened, apex mucronulate. Lower sepal saccate-funnelform, 1–1.1 cm deep, narrowed into an incurved spur ca. 6 mm. Upper petal tetragonous-orbicular, ca. 6 × 11 mm, apex emarginate, abaxial midvein narrowly carinate; lateral united petals not clawed, short, ca. 1.1 cm, 2-lobed; basal lobes subtetragonous; distal lobes broadly dolabriform, ca. 2.5 × as long as basal lobes, apex acute; auricle inflexed, subovate. Filaments linear; anthers obtuse. Ovary fusiform, ca. 3 mm, rostellate. Capsule subfusiform, 1.2–1.5 cm. Seeds brown, oblong-ovoid, compressed, ca. 3 mm, smooth. Fl. Sep–Oct.

• Shaded moist places in forest understories, along canals. NW Yunnan (Dali).

63. *Impatiens jinggangensis* Y. L. Chen, *Acta Phytotax. Sin.* 27: 399. 1989.

井冈山凤仙花 jing gang shan feng xian hua

Plants annual, 30–90 cm tall, glabrous. Stem erect or obliquely ascending, green, striate when dry, succulent, simple or sometimes shortly branched, lower nodes swollen, with many fibrous roots. Leaves alternate; petiole 1.5–3.5 cm, with 2 stipitate basal glands; leaf blade pale green abaxially, green adaxially, ovate-lanceolate or oblong-lanceolate, 8–13 × 1.5–2.5 cm, setose between teeth, lateral veins 5–7 pairs, base

cuneate, attenuate into petiole, margin coarsely crenate, apex acuminate. Inflorescences in upper leaf axils, subcorymbose, 3–8-flowered; peduncles often conspicuously overtopping leaves. Pedicels 1–1.5 cm, elongate at fruiting, slender, bracteate at base; bracts persistent, lanceolate or linear-lanceolate, 3–5 mm, thick, apex acuminate. Flowers purple or pink, 1.5–2.5 cm deep. Lateral sepals 2, obliquely ovate, 6–9 × 3–4 mm, inequilateral, conspicuously veined, apex long mucronulate. Lower sepal broadly funnelliform, narrowed into an incurved spur 1.5–2 cm; mouth nearly vertical or slightly oblique, 1–1.2 cm, tip acute. Upper petal suborbicular, 1–1.1 cm in diam., base truncate, apex emarginate, mucronulate, abaxial midvein cristate; lateral united petals not clawed, ca. 1 cm, 2-lobed; basal lobes suborbicular; distal lobes dolabriform, broad, apex slightly acute; auricle inflexed, large. Filaments linear; anthers small, apex obtuse. Ovary erect, fusiform, 2–3 mm. Capsule linear, 1.7–2.2 cm. Seeds many, brown, obovoid, ca. 3 mm, tuberculate. Fl. and fr. Aug–Oct.

• Understories of dense forests, riverbanks, shaded moist places; 800–1200 m. Hunan, Jiangxi (Jinggangshan).

64. *Impatiens hancockii* C. H. Wright, Bull. Misc. Inform. Kew 1896: 21. 1896.

滇东南凤仙花 dian dong nan feng xian hua

Plants 30–40 cm tall, glabrous. Stem erect, succulent, simple. Leaves alternate; petiole ca. 1 cm, without basal glands; leaf blade lanceolate or ovate-lanceolate, 2.5–7.5 cm, lateral veins 5 or 6 pairs, base cuneate, margin crenate-serrate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, 5–7-flowered; peduncles conspicuously overtopping leaves, ca. 10 cm. Pedicels ca. 1.8 cm, slender, bracteate at base; bracts caducous, ovate, small, 3–4 mm. Flowers blue-purple, ca. 2.5 cm deep, ca. 1.5 cm wide. Lateral sepals 2, obliquely ovate, 5–6 mm, 7- or 8-veined, apex acute. Lower sepal broadly saccate, abruptly narrowed into an incurved spur; spur ca. 2.5 cm, slender. Upper petal suborbicular, base cordate, 7–8 mm in diam.; lateral united petals shortly clawed, 2-lobed; basal lobes suborbicular, small; distal lobes dolabriform, one side retuse, acute; auricle blue-purple, suborbicular. Filaments linear, 3–4 mm; anthers ovoid, apex obtuse. Ovary fusiform. Capsule linear, 1.5–2 cm. Fl. Aug.

• Streamsides; ca. 1400 m. S Yunnan (Mengzi).

65. *Impatiens sulcata* Wallich in Roxburgh, Fl. Ind. 2: 458. 1824.

槽茎凤仙花 cao jing feng xian hua

Impatiens gigantea Edgeworth (1846), not Arnott (1835).

Plants annual, (20–)60–120 cm tall. Stem erect, terete, robust, conspicuously grooved, simple or branched in upper part, sparsely glandular at nodes. Leaves opposite or verticillate in upper part of stem; petiole (0.5–)1.5–3.5 cm, sparsely glandular or without glands; leaf blade elliptic-ovate or ovate-lanceolate, (4–)6–20 × 2–5.5 cm, with red or purple stipitate basal glands, lateral veins 8–12 pairs, base cuneate or subrounded, slightly inequilateral, margin crenate-serrate, apex acuminate or long acuminate. Inflorescences subcorymbose-racemose, many flow-

ered; peduncles 3.5–9 cm. Pedicels swollen at apex, bracteate at base; bracts pink or purple-red, lanceolate or ovate-lanceolate. Flowers purplish pink, large, 3–3.5 cm, 3–3.5 cm deep. Lateral sepals 2, obliquely ovate-cordate, ca. 7 × 4 mm, apex mucronulate. Lower sepal saccate, 1.5–1.8 cm deep, abruptly narrowed into an incurved spur 4–8 mm. Upper petal cucullate, suborbicular, apex curved-rostellate, abaxially not carinate; lateral united petals not clawed, 2.8–3.2 cm, broad; basal lobes subdolabriform to oblong-ovate, ca. 1.4 × 0.6 cm, apex acute, cuspidate; distal lobes broadly dolabriform to broadly elliptic or ovate, ca. 2 × 1 cm, apex acute. Anthers obtuse. Capsule pendulous, clavate, 2–2.5 cm. Seeds obovoid, rugose. Fl. and fr. Aug–Sep. $2n = 18$.

Understories of *Picea* forests, along canals, shaded moist places; 3000–4000 m. S Xizang [Bhutan, India, Kashmir, Nepal].

According to the literature, the seeds are edible.

66. *Impatiens thomsonii* J. D. Hooker, J. Proc. Linn. Soc., Bot. 4: 128. 1860 [*“thomsoni”*].

藏西凤仙花 zang xi feng xian hua

Plants annual, 15–30 cm tall. Stem erect, simple or branched, in upper part subtetragonous, glabrous. Leaves alternate or subverticillate in upper part of stem, lower leaves petiolate, upper leaves sessile; petiole with 2 stipitate globose basal glands; leaf blade ovate-lanceolate, (3–)6–12 cm, glabrous, lateral veins 5–7 pairs, base cuneate or acute, margin coarsely serrate, apex acuminate. Inflorescences in upper leaf axils, racemose-subcorymbose, few flowered; peduncles erect. Pedicels slender, bracteate at base; bracts narrowly lanceolate, glandular, apex acute. Flowers pinkish. Lateral sepals 2, green, obliquely ovate, apex mucronulate. Lower sepal broadly funnelliform or saccate, abruptly narrowed into an incurved, slender spur. Upper petal orbicular, apex retuse, mucronulate; lateral united petals not clawed, 2-lobed; basal lobes yellow, red spotted, oblong, apex acute; distal lobes deep pink, dolabriform, apex rounded. Anthers obtuse. Capsule pendulous, narrowly clavate, 1.5–2 cm. Seeds many, oblong, smooth. Fl. and fr. Aug–Sep.

Along canals; ca. 3700 m. SW Xizang (Burang) [N India, Kashmir, Myanmar].

67. *Impatiens fragicolor* C. Marquand & Airy Shaw, J. Linn. Soc., Bot. 48: 167. 1929.

草莓凤仙花 cao mei feng xian hua

Plants annual, 30–70 cm tall. Stem often purple, tetragonous or nearly terete, robust, succulent, simple or shortly branched, glabrous. Leaves opposite in lower part of stem, alternate in upper part of stem; petiole 0.3–3 cm, with globose glands at base; leaf blade lanceolate or ovate-lanceolate, 3.5–10(–12) × 1.5–4 cm, lateral veins 7–9 pairs, base cuneate, margin crenate-serrate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, subcorymbose, 1–6-flowered; peduncles ca. as long as or slightly longer than leaves. Pedicels 0.5–1.7(–2) cm, apex often swollen, bracteate at base; bracts persistent, lanceolate, 5–6 mm, apex acuminate. Flowers purple or pale purple to light yellowish, 2–2.5 cm deep. Lateral sepals

2, obliquely ovate, 6–7 mm, base subcordate, apex acuminate, shortly mucronulate. Lower sepal broadly funnellform, to 2.7 cm deep, narrowed into an incurved, slender spur. Upper petal cordate-ovate, apex obtuse or emarginate, mucronulate, abaxial midvein inconspicuously thickened; lateral united petals not clawed, ca. 2 cm, 2-lobed; basal lobes subovate; distal lobes dolabriform. Anthers obtuse. Capsule oblong-linear, ca. 2 cm. Fl. Jul–Aug.

• Grasslands by rivers, moist places by canals, roadsides; 3100–3200 m. E Xizang.

The pale purple to pale yellow flowers of this species are similar to *Impatiens sulcata*, but the latter differs in that its lower sepal has an incurved, short spur.

68. *Impatiens amplexicaulis* Edgeworth, Trans. Linn. Soc. London 20: 37. 1846.

抱茎凤仙花 bao jing feng xian hua

Plants annual, 20–40 cm tall. Stem tetragonous with glands at nodes, glabrous, simple or few branched. Leaves opposite in lower part of stem, alternate in upper part of stem, sessile; leaf blade oblong or oblong-lanceolate, 5–15 × 2.5–5 cm, glabrous, lateral veins 9 or 10 pairs, base rounded or cordate, amplexicaul, with globose glands, margin crenate-serrate throughout, teeth mucronulate, apex acuminate. Inflorescences axillary, umbellate or racemose, 6–12-flowered. Pedicels 1–1.5 cm, apex swollen, bracteate at base; bracts ovate-lanceolate. Flowers pink or pink-purple. Lateral sepals 2, obliquely orbicular, rarely falcate. Lower sepal obliquely saccate, abruptly narrowed into an inflexed, short spur. Upper petal suborbicular, apex rostellate, abaxial midvein narrowly carinate; lateral united petals not clawed, 2-lobed; basal lobes suborbicular, apex acuminate; distal lobes spotted, ovate; auricle inflexed, narrow. Anthers obtuse. Capsule subcylindric. Seeds black-brown, obovoid. Fl. Jul–Aug, fr. Aug–Sep.

Thickets along roadsides; 2900–3200 m. Xizang [NW India, Nepal].

69. *Impatiens chungtienensis* Y. L. Chen, Acta Phytotax. Sin. 16(2): 44. 1978.

中甸凤仙花 zhong dian feng xian hua

Plants annual, 35–70 cm tall. Stem conspicuously striate or tetragonous, robust, succulent, simple or branched in upper part. Lower and middle leaves opposite; petiole short, 5–15 mm, with 2 stipitate glands at base; leaf blade ovate-oblong or oblong, 5–8 × 2–3 cm, glabrous, lateral veins 5–9 pairs, base rounded or slightly cordate, margin crenate-serrate, apex acuminate. Upper leaves alternate, sessile; leaf blade ovate or ovate-oblong, rarely ovate-lanceolate, 4–7 × 1.5–3.5 cm, base cordate, amplexicaul, apex acuminate. Inflorescences in upper leaf axils, subcorymbose or racemose, usually 5–7-flowered; peduncles 3–5 cm. Pedicels 5–7 mm, swollen at apex, bracteate at base; bracts ovate-lanceolate. Flowers pink, 1.5–1.7 cm deep. Lateral sepals 2, obliquely ovate, 3.5–4 mm, 5-veined, base cordate, apex mucronulate. Lower sepal dark purple spotted, broadly funnellform, gradually narrowed into an incurved spur 6–9 mm. Upper petal suborbicular, 6–7 × 6–7 mm, apex long rostellate,

abaxial midvein carinate; lateral united petals ± clawed, ca. 1.4 cm, 2-lobed; basal lobes ovate-orbicular, apex acuminate; distal lobes oblong-dolabriform, apex slightly obtuse; auricle rounded. Filaments linear, ca. 4 mm; anthers obtuse. Ovary fusiform. Capsule linear-oblong, 1.4–2 cm. Seeds 8, black, oblong-ovoid, ca. 3 mm, smooth. Fl. Aug–Sep.

• Thickets by water, riversides, along canals, shaded moist places; 3200–3300 m. NW Yunnan (Xianggelila).

70. *Impatiens nyimana* C. Marquand & Airy Shaw, J. Linn. Soc., Bot. 48. 167. 1929.

米林凤仙花 mi lin feng xian hua

Plants annual, 20–60 cm tall. Stem robust, simple or branched, glabrous or subglabrous in lower part, densely or sparsely yellow-brown long hairy in upper part. Leaves alternate, shortly petiolate or upper leaves subsessile; petiole 3–7 mm, basally glandular; leaf blade ovate or ovate-lanceolate, 4–10 × 2.5–4 cm, membranous, abaxially or only veins sparsely pubescent, setose between teeth, adaxially sparsely strigose, lateral veins 7–9 pairs, base cuneate, attenuate into petiole, margin slightly coarsely crenate, apex acuminate, rarely caudate-acuminate. Inflorescences axillary or terminal, (1 or) 2–5-flowered; peduncles shorter than leaves, slender, sparsely pubescent or subglabrous. Pedicels 1–1.2 cm, bracteate at base; bracts ovate-lanceolate, 3–5 mm, apex acuminate. Flowers spreading, yellowish or white, throat yellow, red-brown spotted, to 2.8 cm. Lateral sepals 2, ovate or ovate-lanceolate, ca. 5 mm, apex mucronulate. Lower sepal saccate-funnelform, limb 1.5–1.8 cm deep, abruptly narrowed into a curved, short spur. Upper petal orbicular, apex curved cuspidate, abaxial midvein not thickened; lateral united petals not clawed; basal lobes suborbicular; distal lobes dolabriform. Anthers obtuse. Capsule linear, ca. 2.5 cm. Fl. Jun–Sep.

• Forest understories beside water, grasslands in valleys; 2400–3500 m. E Xizang.

71. *Impatiens bicornuta* Wallich in Roxburgh, Fl. Ind. 2: 460. 1824.

双角凤仙花 shuang jiao feng xian hua

Plants annual, to 1 m tall. Stem robust, succulent, glabrous, branched. Leaves alternate, crowded at upper part; petiole (0.5–) 2–7 cm, with globose glands at base; leaf blade elliptic or elliptic-lanceolate, 7–15(–20) × 4–6.5 cm, membranous, both surfaces glabrous or sparsely pilose, setose at base, lateral veins 10–12 pairs, base cuneate, margin coarsely crenate, apex caudate-acuminate. Inflorescences crowded in leaf axils, racemose, many flowered; peduncles erect, to 25 cm. Pedicels fascicled or verticillate, 1.5–2.5 cm, slender, bracteate at base; bracts ovate, with conspicuous aristate glands at apex. Flowers pale blue-purple, 1.5–2.8 cm deep. Lateral sepals 2, obliquely ovate, small, 4–6 mm, with aristate glands at apex. Lower sepal purple spotted, broadly sigmoid-curved-saccate, 1.5–2 cm, 2–2.5 cm deep (excluding spur), abruptly constricted into a hooked or incurved spur; mouth cornute. Upper petal cucullate, suborbicular, 1–1.2 cm × 1.4–1.6 cm, apex mucronulate; lateral united petals not clawed, 3.2–4 cm, 2-lobed; basal lobes ovate

to suborbicular, 1.1–1.3 × 0.7–0.9 cm, apex truncate to rounded; distal lobes narrowly caudate, 2–2.7 × 0.6–0.7 cm, apex long tailed, acute; auricle inflexed, small. Anthers obtuse. Capsule cylindrical. Seeds 8 or 9, subcylindrical, shiny. Fl. Jun–Aug. $2n = 18$.

Understories of *Tsuga* forests, grasslands by water; 2400–2800 m. S Xizang [N India, Nepal].

72. *Impatiens cymbifera* J. D. Hooker, Fl. Brit. India 1: 474. 1875.

舟状凤仙花 *zhou zhuang feng xian hua*

Plants annual, 40–60 cm tall, rarely to 1 m tall. Stem green, sometimes red-tinged, conspicuously noded, branched, glabrous. Leaves alternate; petiole 1.25–2.5 cm, without basal glands; leaf blade elliptic-ovate or ovate-lanceolate, 8–18 × 3–6.5 cm, membranous, glabrous, lateral veins 9–11 pairs, base cuneate, attenuate into petiole, margin crenate-serrate, teeth mucronulate, apex acuminate or caudate-acuminate. Inflorescences axillary and subterminal, racemose, 1–4 (or 5)-flowered; peduncles often shorter than leaves. Pedicels 1–2 cm; bracts caducous, large. Flowers blue-purple. Lateral sepals 2, purple, ovate-orbicular, 1–1.1 cm, apex acuminate. Lower sepal deeply navicular, abruptly narrowed into a slightly curved spur. Upper petal orbicular, abaxially not carinate; lateral united petals ± clawed, 2-lobed; basal lobes orbicular; distal lobes oblong-dolabriform. Anthers obtuse. Capsule linear, 2.5–3 cm. Fl. Aug–Sep. $2n = 18, 19$.

Forest understories, shaded moist places on slopes; ca. 2500 m. Xizang (Zhangmu) [Bhutan, India (Sikkim), Myanmar, Nepal].

73. *Impatiens urticifolia* Wallich in Roxburgh, Fl. Ind. 2: 457. 1824.

荨麻叶凤仙花 *qian ma ye feng xian hua*

Plants annual, 50–100 cm tall. Stem usually slender, glabrous, branched. Leaves alternate, lower leaves long petiolate, upper leaves sessile; petiole 2–5.5 cm, with stipitate or sessile basal glands; leaf blade elliptic-ovate, elliptic, or oblong-lanceolate, 8–20 × 2.5–5.5 (–6) cm, membranous, both surfaces glabrous, setose between teeth, lateral veins 9–12 pairs, base cuneate, margin crenate, apex caudate-acuminate. Inflorescences usually axillary or subterminal, 3–5-flowered; peduncles spreading or ± curved, shorter than or longer than leaves, slender. Pedicels longer than bracts, fibrous or slender; bracts persistent, ovate-lanceolate. Flowers yellow or pale purple, red striate, ca. 2.5 cm in diam. Lateral sepals 2, obliquely ovate, often with glands on one side. Lower sepal obliquely saccate, short, abruptly narrowed into an incurved or hooked, short spur. Upper petal orbicular, abaxial midvein inconspicuously carinate; lateral united petals not clawed, 2-lobed; basal lobes orbicular; distal lobes dolabriform, apex acute; auricle inflexed, small. Anthers obtuse. Capsule linear, ca. 2.5 cm. Seeds brown, oblong, smooth. Fl. Jun–Aug. $2n = 18, 36$.

Understories of alpine *Quercus* or *Abies* forests on slopes; 2300–3400 m. S Xizang [Bhutan, India (Sikkim), Nepal].

74. *Impatiens radiata* J. D. Hooker, Fl. Brit. India 1: 476. 1875.

辐射凤仙花 *fu she feng xian hua*

Impatiens centiflora H. Léveillé.

Plants annual, to 80 cm tall. Stem erect, robust, many branched. Leaves alternate; petiole (0.5–)1.5–2.5 cm, with 2 globose basal glands; leaf blade oblong-ovate or lanceolate, 6–14 × 2–6 cm, setose between teeth, lateral veins 7–9 pairs, margin crenate, apex acuminate. Inflorescences in upper leaf axils, many flowered, verticillate or nearly so, radiate, many flowered per cycle; peduncles to 20 cm. Pedicels slender, bracteate at base; bracts persistent, lanceolate, apex glandular. Flowers pale purple to yellowish white, 1.2–1.6 cm deep, small. Lateral sepals ovate-lanceolate, minute, apex long mucronulate. Lower sepal navicular, 6–7 mm, 1–1.1 cm deep (including spur), gradually narrowed into an erect spur. Upper petal cucullate, suborbicular, apex rostellate; lateral united petals 1–1.4 cm, 2-lobed; basal lobes broadly ovate to suborbicular, 2–3 × 2–3 mm, small; distal lobes oblong, 0.8–1.1 cm, apically 2-lobed, apex itself obtuse. Anthers obtuse. Capsule linear. Seeds obovoid, small, smooth. Fl. Aug–Sep. $2n = 18^*$.

Shaded and moist places of forest understories, humid grasslands; 2100–3500 m. Guizhou, Sichuan, Xizang, Yunnan [Bhutan, NE India, Myanmar, Nepal].

75. *Impatiens racemosa* Candolle, Prodr. 1: 688. 1824.

总状凤仙花 *zong zhuang feng xian hua*

Plants annual, (3–)20–60 cm tall. Stem erect, branched, glabrous. Leaf petiole (0.2–)1–2.5 cm; leaf blade elliptic-lanceolate or elliptic-ovate, (1.5–)5–10 × (0.5–)2–4 (–5) cm, membranous, both surfaces glabrous, setose between teeth, lateral veins 7–9 pairs, base cuneate, attenuate into petiole, margin crenate, apex acuminate. Inflorescences axillary or subterminal, racemose, 2–10 cm, 4–10-flowered; peduncles often over subtending leaves, slender. Pedicels slender, bracteate at base; bracts persistent, ovate-lanceolate, small, apex glandular. Flowers yellow or pale yellow, small; buds apically rounded. Lateral sepals 2, red when dry, falcate or obliquely ovate, small, 2–3 mm, with 1 gland at one side of upper margin, apex aristate. Lower sepal navicular, usually 1.1–1.8 cm deep including spur, narrowed into an incurved, long spur, or spur very short or absent. Upper petal cucullate, orbicular, 3–5 × 5–8 mm, abaxial midvein not thickened; lateral united petals not clawed, 2-lobed; basal lobes ovate to orbicular, 2–5 × 1.5–3 mm; distal lobes broadly dolabriform, 0.7–1.4 × 0.4–0.7 cm, apically 2-lobed, apex rounded; auricles rounded. Anthers obtuse. Capsule linear or narrowly clavate, to 2.5 cm. Seeds many, brown, oblong. Fl. Jun–Aug.

Grasslands along canals, mossy or stony slopes; 1200–3300 m. Xizang [Bhutan, N India, Kashmir, Myanmar, Nepal].

- 1a. Plants 20–60 cm tall; lower sepal with an incurved, long spur 75a. var. *racemosa*
- 1b. Plants 3–5 cm tall; lower sepal with a very short spur or without spur 75b. var. *ecalcarata*

75a. *Impatiens racemosa* var. *racemosa*

总状凤仙花(原变种) *zong zhuang feng xian hua* (yuan bian zhong)

Impatiens microsciadia J. D. Hooker.

Plants 20–60 cm tall. Lower sepal with an incurved, long spur.

Grasslands along canals; 1200–2400 m. Xizang (Zhangmu) [Bhutan, NE India, Kashmir, Nepal].

75b. *Impatiens racemosa* var. *ecalcarata* J. D. Hooker, Rec. Bot. Surv. India 4: 9. 1905.

无距总状凤仙花 wu ju zong zhuang feng xian hua

Plants very small, 3–5 cm tall. Leaves very small. Lower sepal with a very short spur or without spur.

On moss or stony slopes; ca. 3300 m. S Xizang (Nyalam) [NW India, Myanmar].

76. *Impatiens laxiflora* Edgeworth, Trans. Linn. Soc. London 20: 40. 1846.

疏花凤仙花 shu hua feng xian hua

Impatiens micranthemum Edgeworth.

Plants annual, 30–50 cm tall. Stem erect, glabrous, branched. Leaves alternate; petiole with 2 large basal glands; leaf blade ovate-lanceolate or elliptic-lanceolate, membranous, both surfaces glabrous, setose between teeth, lateral veins 5–7 pairs, base cuneate, attenuate into petiole, margin coarsely crenate, apex acuminate. Inflorescences subterminal, racemose, 6–11-flowered; peduncles slender. Pedicels slender, bracteate at base; bracts persistent, ovate-lanceolate, small. Flowers pale pink or white, small. Lateral sepals ovate or ovate-subulate, small, 3-veined, apex glandular mucronulate or apiculate. Lower sepal navicular, with erect, short spur. Upper petal orbicular, with a black gland on each side of base; lateral united petals not clawed, 2-lobed; basal lobes orbicular; distal lobes oblong-dolabriform. Anthers obtuse. Capsule clavate. Fl. Aug.

Along canals; ca. 3200 m. Xizang (Cona) [Bhutan, N India, Kashmir, Nepal].

77. *Impatiens bahanensis* Handel-Mazzetti, Symb. Sin. 7: 648. 1933.

白汉洛凤仙花 bai han luo feng xian hua

Plants annual, to 100 cm tall, glabrous, with short supporting roots, simple or branched, ± succulent below with swollen nodes. Leaves alternate, remote in lower part of stem and petiole to 5 cm, ± crowded in upper part of stem and subsessile; leaf blade pale green abaxially, deep green adaxially, ovate or ovate-oblong, 5–12 × 2.5–4.5 cm, submembranous, stipular glands subulate or broadly linear, setose between teeth, often with sparse glands along basal margin, lateral veins 5–9 pairs, fine, curved, base narrowed or rarely subrounded, margin crenate-serrate, apex acuminate. Inflorescences terminal or in upper leaf axils, racemose, many flowered; peduncles overtopping petioles, 8–13 cm. Pedicels spreading, 1–1.7 cm, slender, bracteate at base; bracts persistent, linear or linear-lanceolate, 1–2 mm, apex aristate. Flowers pink, ca. 1 cm. Lateral sepals 2, broadly ovate, very small, 1–2 mm, apex long mucronulate. Lower sepal navicular, narrowed into an incurved spur; spur ca.

1 cm, slender; mouth vertical, acuminate. Upper petal green, cucullate, broadly ovate, ca. 3 mm, abaxial midvein not thickened, not carinate; lateral united petals not clawed, ca. 6 mm, 2-lobed; basal lobes orbicular, ca. 4 mm. Filaments linear, very short; anthers orbicular, apex obtuse. Ovary fusiform. Capsule fusiform, 8–15 mm. Fl. Jul–Aug.

• Margins of bamboo forests, mixed forests in valleys; 300–3000 m. NW Yunnan (Dulong Jiang-Nu Jiang divide).

78. *Impatiens parviflora* Candolle, Prodr. 1: 687. 1824.

小花凤仙花 xiao hua feng xian hua

Plants annual, 30–60 cm tall, glabrous or sparsely glandular hairy, with few supporting and fibrous roots. Stem erect, succulent, nodes swollen; branches spreading. Leaves alternate; petiole 1.5–2 cm; leaf blade pale green abaxially, dark green adaxially, elliptic or ovate, 6–11 × 3.5–4.5 cm, membranous, usually with 3 or 4 pairs of stipitate basal glands, lateral veins 5–7 pairs, curved, base cuneate, decurrent to petiole, margin acutely serrate, teeth mucronulate, basally nearly entire, apex acuminate or shortly acute. Inflorescences in upper leaf axils, 4–12-flowered; peduncles ca. as long as or slightly longer than subtending leaf. Pedicels 1–1.5 cm, elongate at fruiting, slender, bracteate at base; bracts persistent, ovate-lanceolate, 2–3 × 1–1.5 mm. Flowers pale yellow, throat often reddish spotted, small, ca. 1 cm deep. Lateral sepals 2, ovate, ca. 3 × 1–1.5 mm, margin entire. Lower sepal navicular, abruptly narrowed into an erect spur; spur conical, 5–7 mm; mouth vertical, ca. 8 mm, tip acute. Upper petal orbicular, ca. 5 mm, apex emarginate, abaxial midvein not thickened; lateral united petals ± clawed, reddish spotted, 1–1.2 cm, 2-lobed; basal lobes reddish spotted, ovate, apex obtuse; distal lobes subdolabriform, 2-lobed. Filaments linear, swollen apically; anthers obtuse. Ovary fusiform, 2–3 mm. Capsule linear-oblong or cylindrical, 2–2.5 cm. Seeds few, oblong-ovoid, ca. 3 mm. Fl. Jun–Aug. $2n = 26$.

Riverbanks, mossy or moist places along canals; 1200–1700 m. Xinjiang [Kazakhstan, Kyrgyzstan, Mongolia, Russia; Europe].

79. *Impatiens brachycentra* Karelin & Kirilov, Bull. Soc. Imp. Naturalistes Moscou 15: 179. 1842.

短距凤仙花 duan ju feng xian hua

Plants annual, 30–60 cm tall, with fibrous roots. Stem erect, succulent, branched or simple. Leaves alternate; petiole 1–2.5 cm; leaf blade elliptic or ovate-elliptic, 6–15 × 2–5 cm, lateral veins 5–7 pairs, base cuneate, margin crenate-serrate, teeth mucronulate, apex acuminate. Inflorescences axillary, racemose, 4–12-flowered; peduncles 5–10 cm. Pedicels slender, bracteate at base; bracts persistent, lanceolate, small. Flowers erect, whitish, very small. Lateral sepals 2, ovate, apex slightly obtuse. Lower sepal navicular, ca. 1 mm, narrowed into a short, triangular spur shorter than 1 mm. Upper petal broadly obovate; lateral united petals ± clawed, 2-lobed; basal lobes oblong; distal lobes broadly oblong, large. Anthers obtuse. Capsule linear-oblong, ca. 2 cm. Fl. Aug–Sep.

Forest understories on slopes, forest margins, along canals, mossy places; 800–2100 m. Xinjiang [Kazakhstan, Kyrgyzstan].

80. *Impatiens rectangula* Handel-Mazzetti, Symb. Sin. 7: 649. 1933.

直角凤仙花 zhi jiao feng xian hua

Plants annual, 30–70 cm tall, glabrous, with few supporting roots. Stem erect, branched, naked in lower part. Leaves alternate, crowded in upper part of stem and subsessile, lower leaves with petiole ca. 4.5 cm; leaf blade pale green abaxially, dark green adaxially, ovate or ovate-lanceolate, 4–17 × 2.5–5 cm, membranous, with stipitate glands, adaxially sparsely brown pilose, setose between teeth, lateral veins 5–10 pairs, base narrowed, margin densely crenate, apex subcaudate-acuminate. Inflorescences in terminal leaf axils, racemose, many flowered; peduncles overtopping or ca. as long as leaves, 7–15 cm, slender, rigid. Pedicels fibrous, 1.2–2 cm, elongate at fruiting, bracteate at base; bracts persistent, lanceolate or setose, 1–3 mm. Flowers sulfur-colored, 1.5–2 cm deep. Lateral sepals 2, green, obliquely ovate or nearly sigmoid, 2–4 mm, apex mucronulate. Lower sepal navicular, ca. 8 mm, gradually narrowed into a rectangular spur ca. 3.5 cm; tip acuminate. Upper petal subtetragonus-orbicular, ca. 6 mm, apex emarginate, abaxial midvein carinate; lateral united petals not clawed, 2-lobed; basal lobes orbicular, short; distal lobes broadly or narrowly dolabriform, ca. 2 × as long as basal lobes, apex obtuse; auricle suborbicular. Filaments linear; anthers orbicular, small. Capsule fusiform, 2.5–3 cm. Seeds many (ca. 10), brown, orbicular, ca. 3 mm in diam. Fl. and fr. Sep–Oct.

• Margins of bamboo forests, streamsides; 2700–3000 m. NW Yunnan.

81. *Impatiens thiochroa* Handel-Mazzetti, Symb. Sin. 7: 651. 1933.

硫色凤仙花 liu se feng xian hua

Plants annual, 30–50 cm tall, glabrous. Stem erect, succulent, nodes swollen, with adventitious roots, simple or branched from base. Leaves often crowded in upper part of stem, alternate, petiolate, upper leaves shortly petiolate; leaf blade pale green abaxially, dark green adaxially, ovate or ovate-lanceolate, 5–8 × 3–3.5 cm, membranous, lateral veins 6–8 pairs, spreading and curved, base cuneate or narrowed, margin crenate, teeth mucronulate, apex shortly acuminate. Inflorescences in upper leaf axils, (2 or)3- or 4-flowered; peduncles 3–4(–6) cm, slender. Pedicels 1–2 cm, slender, bracteate at base; bracts persistent, linear or linear-lanceolate, 1–5 mm, membranous. Flowers sulfur-colored, 1–1.5 cm deep. Lateral sepals 2, broadly ovate or orbicular, ca. 3 mm, apex shortly mucronulate. Lower sepal navicular; mouth vertical, ca. 7 mm, tip acute, base constricted into a slightly erect, incurved spur; spur cornute, 1–1.2 cm. Upper petal green, cucullate, orbicular, ca. 4 mm in diam., margin scarious, abaxial midvein thickened, 2-cornute-carinate; lateral united petals not clawed, ca. 9 mm, 2-lobed; basal lobes broadly obovate-orbicular or retuse; distal lobes broadly subobovate, ca. as long as basal lobes, abaxially or laterally denticulate, apex rounded. Filaments ligulate; anthers orbicular, apex acute. Ovary striate, fusiform. Capsule erect, narrowly clavate, 1–1.8 cm. Seeds few, ca. 6. Fl. and fr. Jul–Aug.

• Understories of *Abies* forests, shaded moist places; 2900–3200 m. NW Yunnan.

82. *Impatiens crassicaudex* J. D. Hooker, Hooker's Icon. Pl. 30: t. 2957. 1911.

粗茎凤仙花 cu jing feng xian hua

Plants annual, 20–30 cm tall. Stem robust, ca. 1 cm in diam. at base, succulent, with many fibrous roots, many branched from base. Leaves alternate; petiole 1–3 cm; leaf blade ovate, 3–5 × 1–2 cm, glabrous, lateral veins 4 or 5 pairs, base attenuate into petiole, margin crenate-serrate, apex caudate-acuminate. Inflorescences many, axillary or terminal, racemose, few flowered; peduncles erect or spreading, shorter or longer than leaves, slender. Pedicels 6–8 mm, bracteate at base; bracts ± persistent, ovate, 3–4 mm. Flowers yellow or yellowish, small, to 1.5 cm deep. Lateral sepals 2, narrowly triangular-ovate, 1-veined. Lower sepal shortly navicular, narrowed into an erect spur 2–2.5 cm. Upper petal orbicular, ca. 8 mm in diam., apex obtuse, abaxial midvein thickly carinate; lateral united petals not clawed, 2-lobed; basal lobes orbicular; distal lobes dolabriform, ca. 2 × as long as basal lobes; auricle rounded. Anthers obtuse. Capsule linear, 2–2.5 cm. Fl. and fr. Sep.

• Along canals; ca. 3300 m. Sichuan, Xizang, Yunnan.

83. *Impatiens infirma* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 248. 1908.

脆弱凤仙花 cui ruo feng xian hua

Plants annual, 30–60 cm tall, glabrous. Stem erect, branched. Leaves alternate; petiole 2–3 cm; leaf blade ovate or ovate-lanceolate, 3–13 × 1.5–3 cm, thinly membranous, both surfaces glabrous and same in color, lateral veins 6–8 pairs, base cuneate, margin crenate, teeth mucronulate, apex acuminate or long acuminate. Inflorescences in upper leaf axils, corymbose or racemose, few- to more than 10-flowered; peduncles 5–7 cm. Pedicels 1–1.5 mm, slender; bracts persistent, ovate-lanceolate. Flowers yellow, 1.5–2 cm deep. Lateral sepals 2, obliquely ovate or falcate, ca. 3 mm, 3–6-veined. Lower sepal navicular, narrowed into an incurved or involute spur; spur long, to 2 cm. Upper petal obovate-orbicular, cup-shaped, abaxial midvein obtusely cristate; lateral united petals ± clawed, 2-lobed; basal lobes broadly orbicular; distal lobes dolabriform; auricle inflexed. Anthers obtuse. Capsule narrowly fusiform, 1.5–2 cm. Seeds obovoid, tuberculate. Fl. Jul–Sep.

• Forests in valleys, along canals; 3100–3600 m. Sichuan, Xizang.

84. *Impatiens tuberculata* J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 4: 155. 1860.

瘤果凤仙花 liu guo feng xian hua

Plants annual, 20–30 cm tall. Stem erect, slender, branched, glabrous throughout. Leaves alternate; petiole 5–6 mm, without basal glands; leaf blade elliptic or elliptic-ovate, 1.5–3 × 1–1.5 cm, setose between teeth, lateral veins 5 or 6 pairs, base cuneate or subtruncate, margin crenate, apex acuminate. Inflorescences axillary or terminal, racemose, 5- or 6-flowered; peduncles shorter or longer than leaves. Pedicels 5–7 mm, slender; bracts caducous, small. Flowers purplish, small, 8–9 mm in diam. Lateral sepals 2, falcate, minute. Lower sepal navicular, with a very short spur. Upper petal cucullate, orbicu-

lar, abaxial midvein carinate; lateral united petals 2-lobed; lobes orbicular. Anthers short, broad, apex obtuse. Capsule shortly clavate, 0.8–1 cm, 5-angled, densely or sparsely tuberculate along ribs. Seeds few, brown, compressed, oblong. Fl. Aug–Sep.

Margins of *Abies* forests, grasslands, along canals; ca. 3800 m. W Xizang [Bhutan, India (Sikkim)].

85. *Impatiens polyceras* J. D. Hooker ex W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 8: 340. 1915.

多角凤仙花 duo jiao feng xian hua

Plants 30–70 cm tall, glabrous. Stem erect, stout in lower part, branched, stem and branches sparsely glandular. Leaves alternate; petiole to 1 cm, winged; leaf blade gray abaxially, ovate-lanceolate, 5–7 × 2–3 cm, thinly membranous, setose between teeth, lateral veins 5–7 pairs, base broadly cuneate, margin crenate, apex acuminate. Inflorescences many flowered; peduncles erect, nearly as long as upper leaves, slender. Pedicels fibrous, 1–1.5 cm, bracteate at base; bracts lanceolate, 2–3 mm, apex glandular aristate. Flowers orange, small. Lateral sepals 2, obliquely lanceolate, 3–4.5 mm, apex glandular aristate. Lower sepal navicular, limb to 2.5 cm deep, narrowed into an incurved spur longer than limb; mouth oblique, 6–8 mm, tip cuspidate. Upper petal orbicular or oblate, ca. 6 mm in diam., abaxial midvein conspicuously carinate; lateral united petals not clawed, 1–2 cm, 2-lobed; basal lobes suborbicular; distal lobes dolabriform, longer, apex obtuse. Filaments ca. 2 mm; anthers obtuse. Ovary linear. Seeds few, brown, obovoid, ca. 2.5 mm, tuberculate. Fl. and fr. Jul–Aug.

• River valleys, moist grasslands, streamsides; 2400–2600 m. NW Yunnan.

86. *Impatiens desmantha* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 248. 1908.

束花凤仙花 shu hua feng xian hua

Impatiens valbrayana H. Léveillé.

Plants 30–70 cm tall, glabrous. Stem erect, swollen in lower part, branched in upper part. Leaves alternate; petiole 1–2 cm; leaf blade whitish abaxially, dark green adaxially, ovate, 4–8 × 2–3 cm, setose between teeth, lateral veins 5 or 6 pairs, base cuneate, attenuate into petiole, margin crenate or crenulate, apex acuminate. Inflorescences many, usually crowded at apices of branches, corymbose, 3–10-flowered; peduncles erect, 2–4 cm, very slender. Pedicels 5–15 mm, elongate at fruiting, bracteate at base; bracts caducous, ovate-lanceolate or setose spreading. Flowers yellow, small, ca. 5 mm wide. Lateral sepals 2, falcate-ovate, ca. 4 mm, 3-veined, apex obtuse or slightly acute. Lower sepal navicular, limb 7–8 mm deep, base gradually narrowed into an incurved spur 2–2.5 cm; mouth suboblique, tip acute. Upper petal orbicular, ca. 8 mm in diam., abaxial midvein narrowly cristate, cuspidate, apex retuse; lateral united petals not clawed, 1–4 cm, 2-lobed; basal lobes orbicular; distal lobes dolabriform or lunar, ca. 2 × as long as basal lobes, apex obtuse; auricle inflexed, small, narrow. Filaments linear; anthers small, apex acute. Seeds few, obovoid, ca. 4 mm, smooth. Fl. Aug–Sep.

• Understories of *Abies* forests, shaded moist places in valleys; 2800–4000 m. Yunnan.

87. *Impatiens gracilipes* J. D. Hooker, Hooker's Icon. Pl. 30: t. 2956. 1911.

细梗凤仙花 xi geng feng xian hua

Plants annual, 20–30 cm tall, glabrous. Stem robust, succulent, with many fibrous roots, branched in upper part. Leaves alternate; petiole 1–2 cm; leaf blade ovate, 4–6 × 2.5–3 cm, rigid, with 2 small glands on both sides of base, setose between teeth, lateral veins 5 or 6 pairs, inconspicuous, base cuneate, attenuate into petiole, margin shallowly crenate, apex acute or acuminate. Inflorescences axillary, racemose, 3–6-flowered; peduncles distinctly overtopping leaves, slender. Pedicels 1–1.5 cm, bracteate at base; bracts caducous, ovate-lanceolate, 2–3 mm. Flowers yellow, ca. 1 cm wide. Lateral sepals 2, narrowly ovate or oblong, rarely subovate, 3–4 mm, inequilateral, apex slightly acute, abaxial midvein stout. Lower sepal shortly navicular, limb 6–7 mm deep, gradually narrowed into an incurved spur ca. 2 × as long as limb; mouth vertical, tip acute. Upper petal cucullate, orbicular, apex obtuse; lateral united petals not clawed, ca. 1 cm, 2-lobed; basal lobes orbicular, small; distal lobes oblong-dolabriform, ca. 2 × as long as basal lobes; auricle small. Filaments compressed, linear; anthers ovoid, apex obtuse. Ovary erect, fusiform. Capsule linear or subclavate, ca. 1.5 cm. Seeds few, brown, obovoid, compressed, ca. 3 mm, smooth. Fl. Jun–Jul.

• Shaded moist places on slopes. W Sichuan.

88. *Impatiens margaritifera* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 249. 1908.

无距凤仙花 wu ju feng xian hua

Plants annual, 40–50 cm tall, glabrous. Stem erect, branched or simple. Leaves alternate or opposite in lower and middle parts of stem; petiole 1–5 cm; leaf blade ovate, 3–10 × 1.5–3.5 cm, membranous, with 2 large basal glands, setose between teeth, lateral veins 5–7 pairs, base cuneate, margin coarsely crenate, apex acuminate. Inflorescences axillary, racemose, (3–)6–8-flowered. Pedicels short, bracteate at base; bracts caducous or persistent, linear or linear-oblong, 2–4 mm, apex acute. Flowers white, small, ca. 2 cm. Lateral sepals 2, ovate-orbicular, small, mucronulate. Lower sepal navicular, spur absent. Upper petal elliptic-obovate or suborbicular, apex mucronulate; lateral united petals broadly clawed, 2-lobed; basal lobes ovate-oblong or suborbicular; distal lobes narrowly dolabriform or oblong-dolabriform, longer; auricle broad. Anthers obtuse. Capsule linear, to 1.8 cm. Seeds few, obovoid. Fl. Jul–Sep.

• Understories of *Abies* forests, forest margins, grasslands, riverbanks, streamsides, moist places; 2600–4000 m. SW Sichuan, Xizang, NW Yunnan.

- 1a. Plants short; leaves opposite in lower and middle parts of stem, upper leaves alternate; inflorescences 3–6-flowered, bracts persistent; basal lobes of lateral united petals suborbicular, distal lobes oblong-dolabriform 88c. var. *humilis*

- 1b. Plants relatively taller; leaves alternate; inflorescences 6–8-flowered, bracts caducous; basal lobes of lateral united petals ovate-oblong, distal lobes narrowly dolabriform.
- 2a. Flowers white; lateral sepals ovate-orbicular, apex mucronate 88a. var. *margaritifera*
- 2b. Flowers purplish; lateral sepals obliquely ovate, apex long mucronulate 88b. var. *purpurascens*

88a. *Impatiens margaritifera* var. *margaritifera*

无距凤仙花(原变种) wu ju feng xian hua (yuan bian zhong)

Flowers white. Lateral sepals ovate-orbicular, apex mucronate.

• Understories of *Abies* forests, grasslands, riverbanks, stream-sides, moist places; 2600–3800 m. NW Yunnan.

88b. *Impatiens margaritifera* var. *purpurascens* Y. L. Chen, Acta Phytotax. Sin. 18: 382. 1980.

紫花无距凤仙花 zi hua wu ju feng xian hua

Flowers purplish. Lateral sepals obliquely ovate, apex long mucronulate.

• Forest margins. Xizang (Zayü).

88c. *Impatiens margaritifera* var. *humilis* Y. L. Chen, Acta Phytotax. Sin. 16(2): 45. 1978.

矮小无距凤仙花 ai xiao wu ju feng xian hua

Plants short. Lower part of stem with opposite branches. Leaves opposite in lower and middle parts of stem, alternate in upper part of stem. Inflorescences 3–6-flowered; bracts persistent. Basal lobes of lateral united petals suborbicular; distal lobes oblong-dolabriform.

• On moss of *Abies* forest understories; 3700–4000 m. SW Sichuan, Xizang, NW Yunnan.

89. *Impatiens puberula* Candolle, Prodr. 1: 687. 1824.

柔毛凤仙花 rou mao feng xian hua

Plants annual, 30–60 cm tall. Stem erect, slender, simple or laxly branched, pubescent in upper part. Leaves alternate; petiole 0.5–2.5 cm; leaf blade elliptic or elliptic-lanceolate, 5–15 × 2.5–4.5 cm, membranous, basal glands absent, abaxially pubescent especially on veins, adaxially strigose, lateral veins 5–7 pairs, base cuneate, gradually attenuate into petiole, margin crenate, apex acuminate or long acuminate. Inflorescences terminal or in upper leaf axils, 1-flowered; peduncles absent. Pedicels 2.5–3.5 cm, bracteate at base; bracts subulate, brown pubescent. Flower blue-purple, 3–3.5 cm deep. Lateral sepals 2, broadly ovate, sparsely puberulent, apex acuminate. Lower sepal obconic or funnellform, narrowed into an incurved, long spur. Upper petal orbicular, puberulent on apical margin, abaxial midvein conspicuously cristate; lateral united petals not clawed, 2-lobed; basal lobes orbicular, small; distal lobes broadly subovate. Anthers acute. Capsule linear, ca. 2.5 cm. Fl. Jun–Jul. $2n = 20$.

Forest understories, forest margins, grasslands; 2100–2500 m. W Xizang, ?Yunnan [Bhutan, India, Nepal].

90. *Impatiens leveillei* J. D. Hooker, Hooker's Icon. Pl. 29: t. 2865. 1908.

羊坪凤仙花 yang ping feng xian hua

Plants 0.6–1 m tall, glabrous. Stem erect, purple-red tinged, robust, ± curved in lower part. Leaves alternate; petiole long, 2–4 cm; leaf blade pale green abaxially, dark green adaxially, ovate, 10–15 × 3–5 cm, thinly membranous, lateral veins (8 or)9 or 10 pairs, base attenuate into petiole, margin crenate-serrulate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, 1- or 2-flowered; peduncles very short, 2–2.5 mm. Pedicels fibrous, 2–2.5 cm, bracteate at base; bracts 6–7 mm, setose. Flower purplish yellow, large, 3–4 cm, ca. 1.3 cm wide. Lateral sepals 4; outer 2: ovate-lanceolate, ca. 1.2 cm, inequilateral; inner 2: narrowly linear, ca. 8 mm, hyaline margined. Lower sepal saccate, 3–4 cm deep, gradually narrowed into an incurved spur ca. 2 cm; mouth oblique, tip acuminate. Upper petal orbicular, apex cuspidate, abaxial midvein thickened, cristate at middle; lateral united petals not clawed, ca. 3 cm, 2-lobed; basal lobes broadly orbicular; distal lobes dolabriform, longer, apex rounded; auricle inflexed, large. Filaments fibrous, ca. 4 mm; anthers ovoid, apex obtuse. Ovary linear. Capsule linear, 2.5–4 cm, longitudinally costate. Seeds many, orbicular, compressed, ca. 3 mm. Fl. Aug–Sep.

• Slopes, grasslands, along canals; 1200–1300 m. SW Guizhou.

91. *Impatiens abbatis* J. D. Hooker, Hooker's Icon. Pl. 29: t. 2861. 1908.

神父凤仙花 shen fu feng xian hua

Plants annual, 40–50 cm tall, glabrous. Stem erect, green or purple-tinged, many branched; branches spreading or ascending, rigid, slender. Leaves alternate; petiole short, 5–10 mm, often with 1 pair of basal glands; leaf blade ovate or elliptic-ovate, 2–4 × 1–2.5 cm, rigidly papery, lateral veins 5–7 pairs, prominent, base broadly cuneate, margin sharply serrulate, teeth scarcely mucronulate, apex acute or shortly acuminate. Flowers solitary in leaf axils, rarely 2. Peduncles absent. Pedicels shorter than leaves, 1–1.5 cm, slightly elongate at fruiting, bracteate at base; bracts persistent, lanceolate or setose, 4–5 mm, membranous. Flowers blue-purple, 3.5–4 cm deep. Lateral sepals 4; outer 2: subovate, swollen at middle, base rounded, apex curved, long mucronulate; inner 2: lanceolate, ca. as long as or slightly shorter than outer ones, 3-veined, apex acuminate. Lower sepal slightly curved, saccate, 2.5–3 cm deep, gradually narrowed into a hooked, incurved spur; spur ca. 1 cm, stout; mouth tip acute, 1–1.5 cm wide. Upper petal orbicular, ca. 1.2 cm in diam., apex cuspidate, midvein not thickened; lateral united petals not clawed, 2–2.5 cm, 2-lobed; basal lobes broadly oblong, apex retuse; distal lobes oblong-dolabriform, ca. 2 × as large as basal ones, apex rounded; auricle large. Filaments linear, short; anthers obtuse. Ovary fusiform. Capsule linear-cylindric, 2–5 cm. Seeds few, brown, globose, ca. 2.5 mm in diam., smooth. Fl. Aug–Sep, fr. Oct.

• Forest understories, shaded moist places, roadsides; 1200–2100 m. W Yunnan.

92. *Impatiens arguta* J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 4: 137. 1860.

锐齿凤仙花 rui chi feng xian hua

Impatiens arguta var. *bulleyana* J. D. Hooker; *I. gagei* J. D. Hooker; *I. namcharwensis* R. Morgan et al.; *I. taliensis* Lingelsheim & Borza.

Plants perennial, to 70 cm tall. Stem erect, rigid, branched. Leaves alternate; petiole 1–4 cm; leaf blade ovate or ovate-lanceolate, 4–15 × 2–4.5 cm, often with 2 stipitate basal glands, glabrous, lateral veins 7 or 8 pairs, base cuneate, margin sharply serrate, apex acute or acuminate. Inflorescences axillary, 1- or 2-flowered; peduncles very short. Pedicels long, slender, often with 2 setose bracts at base. Flowers pink or purple-red, large or medium-sized. Lateral sepals 4; outer 2: subovate, apex long cuspidate; inner 2: narrowly lanceolate. Lower sepal saccate, narrowed into an incurved, short spur. Upper petal orbicular, apex mucronulate, abaxial midvein narrowly carinate; lateral united petals not clawed, 2-lobed; basal lobes broadly oblong; distal lobes dolabriform, large, apex 2-fid; auricle conspicuous. Anthers obtuse. Capsule fusiform. Seeds few, globose, slightly shiny. Fl. Jul–Sep. $2n = 18, 20$.

Forest understories, thickets, grasslands in valleys, along canals, moist places; 1800–3200 m. SW Sichuan, E Xizang, C and NW Yunnan [Bhutan, NE India, Myanmar, Nepal].

The flowers are used medicinally for dissolving clots, promoting diuresis, and treating abdominal pain, postpartum blood stasis, carbuncles, and difficulty in urination.

93. *Impatiens linghziensis* Y. L. Chen, Acta Phytotax. Sin. 16(2): 46. 1978.

林芝凤仙花 lin zhi feng xian hua

Plants annual, to 60 cm tall. Stem slender, simple, rarely shortly branched. Leaves alternate; petiole 1–1.5 cm; leaf blade linear-oblong or linear-lanceolate, rarely linear, 7–13 × 0.8–1.8 cm, membranous, often with 1 pair of purple stipitate glands at basal margin, glabrous, lateral veins 9–11 pairs, base gradually attenuate into petiole, margin sharply serrate, apex acute or long acuminate. Inflorescences axillary, 2-flowered; peduncles short, 2–3 mm. Pedicels slender, with 2 subulate-linear bracts at base; bracts persistent, broadly oblong, apex aristate. Flowers pale purple, large, to 4.5 cm deep. Lateral sepals 4; outer 2: subglobose, curved, 3-veined, apex aristate-acuminate; inner 2: linear, 1-veined, aristate. Lower sepal saccate, narrowed into a hooked, incurved spur. Upper petal orbicular, apex cornute-rostellate, abaxial midvein swollen at middle; lateral united petals ± clawed, 2-lobed; basal lobes ovate-oblong, apex rounded or emarginate, fibrously mucronulate; distal lobes broadly oblong, emarginate, mucronulate; auricle inflexed, small. Anthers obtuse. Capsule linear. Fl. Jun–Jul.

• Forest understories, moist places; 2500–2700 m. E Xizang (Nyingchi).

94. *Impatiens lemeei* H. Léveillé, China Revue Annuelle, 29. 1916.

荞麦地凤仙花 qiao mai di feng xian hua

Impatiens hookeriana H. Léveillé, Cat. Pl. Yun-Nan, 122. 1916, not Arnott (1835).

Plants annual, 30–100 cm tall, glabrous. Stem erect, basally long naked. Leaves alternate; petiole long, 3–5 cm; leaf blade gray-white abaxially, dark green adaxially, ovate, ovate-lanceolate, or ovate-oblong, 10–15 × 4–6 cm, membranous, often with 1 or 2 pairs of stipitate basal glands, abaxially glabrous, adaxially sparsely white adpressed hairy, lateral veins 6 or 7 pairs, curved, midvein conspicuous abaxially, base broadly cuneate, attenuate into petiole, margin coarsely sharply serrate, teeth aristate, apex acuminate or caudate-acuminate. Inflorescences in terminal leaf axils, 2-flowered; peduncles shorter than leaves, 4–5 cm. Pedicels 1.5–2 cm, bracteate at base; bracts caducous, ovate-lanceolate, 5–6 mm, apex acuminate. Flowers white, 2.5–3 cm deep. Lateral sepals 2, broadly ovate-orbicular, ca. 7 × 5–6 mm, 6- or 7-veined, apex acuminate. Lower sepal broadly funnelliform, 1–1.5 cm deep, gradually narrowed into an involute spur; spur pink spotted, 1–1.5 cm; mouth oblique, ca. 1 cm wide, tip acute. Upper petal suborbicular, ca. 1 × 0.6–0.7 cm, apex mucronulate, abaxial midvein thickened, cristate at middle; lateral united petals not clawed, 1.8–2 cm, 2-lobed; basal lobes orbicular; distal lobes oblong-dolabriform; auricle inflexed, reniform. Filaments linear, compressed, ca. 5 mm; anthers ovoid, apex acute. Ovary erect, fusiform. Capsule not seen. Fl. Aug–Sep.

• Grasslands along canals; 1900–3000 m. NE Yunnan.

This species differs from other Chinese species in having leaves bicolor, large, with a coarsely and sharply serrate margin and aristate apex, and flowers white, large, with an involute, pink spotted spur.

95. *Impatiens atherosepala* J. D. Hooker, Hooker's Icon. Pl. 29: t. 2868. 1908.

芒萁凤仙花 mang e feng xian hua

Plants annual, ca. 20 cm tall, glabrous. Stem erect, simple. Leaves alternate in lower and middle parts of stem, petiolate but uppermost leaves sessile; petiole 1–2 cm; leaf blade lanceolate, 4–6 × 1.5–2 cm, rigidly papery, lateral veins 6–8 pairs, base gradually attenuate into petiole, margin spinescent-serrate, apex long acuminate. Inflorescences 1-flowered; peduncles shorter than leaves, 2.5–3 cm. Pedicels bracteate at middle; bracts ?persistent, ovate-lanceolate, long acuminate. Flowers red-yellow, small, to 1.1 cm deep. Lateral sepals 2, ovate, apex acuminate, aristate, arista ca. as long as sepals, rigid, ca. 5 mm, 3-veined. Lower sepal navicular, ca. 1 cm deep, abruptly contracted into an incurved spur ca. 1.5 cm, tip acute, erect. Upper petal orbicular, ca. 8 mm in diam., base cordate, apex retuse, rostellate, abaxial midvein cristate; lateral united petals not clawed, ca. 1.2 cm, 2-lobed; basal lobes orbicular; distal lobes dolabriform, longer, apex obtuse; auricle inflexed. Filaments linear; anthers ovoid, apex acuminate. Ovary erect, fusiform. Capsule not seen. Fl. and fr. unknown.

• Guizhou (Pingba).

96. *Impatiens labordei* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 250. 1908.

高坡凤仙花 gao po feng xian hua

Plants 20–30 cm tall, slender, glabrous. Stem erect, simple, basally long naked. Leaves alternate; petiole 1.5–2.5 cm; leaf blade ovate, 3–5 × 2–2.5 cm, lateral veins 5 or 6 pairs, base cuneate, attenuate into petiole, margin serrulate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, 1-flowered; peduncles 2–3 cm. Pedicels bracteate above middle; bracts linear-lanceolate, small, ca. 1.2 mm. Flowers yellow, ca. 1.5 cm wide. Lateral sepals 2, ovate or obliquely obovate-orbicular, 4–5 mm, inequilateral, 3-veined, apex cuspidate. Lower sepal navicular, ca. 1.1 cm deep, gradually narrowed into an incurved, then erect spur; spur ca. 2 cm, stout; mouth vertical, tip obtuse, mucronulate. Upper petal orbicular, ca. 1 cm in diam., apex retuse, abaxial midvein obtusely cornute below middle. Filaments linear; anthers acute. Capsule flexuose. Seeds 2, oblong, ca. 3 mm, tuberculate on one side. Fl. and fr. unknown.

• Sparse forests, along canals in valleys, moist places; ca. 1400 m. Guizhou.

97. *Impatiens yunnanensis* Franchet, Bull. Soc. Bot. France 33: 445. 1886.

云南凤仙花 *yun nan feng xian hua*

Plants small, ca. 20 cm tall. Stem erect, slender, simple, basally long naked. Leaves few, alternate; petiole 5–10 mm; leaf blade gray-white abaxially, dark green adaxially, ovate, abaxially shortly strigose, adaxially glabrous, lateral veins 4 or 5 pairs, base acute, gradually attenuate into petiole, margin serrate, teeth mucronulate, apex subacute. Inflorescences axillary, 1-flowered; peduncles erect, shorter than leaves. Pedicels with 2 bracts at middle. Flowers yellow, large, 3–5 cm deep. Lateral sepals 2, orbicular, ca. 4 mm in diam., 5–7-veined, inequilateral. Lower sepal saccate, ca. 2 cm deep, gradually narrowed into an involute, short spur; mouth suboblique, ca. 2.5 cm wide, tip acute. Upper petal orbicular, ca. 1.2 cm in diam., abaxial midvein broadly cristate at middle; lateral united petals ± clawed, ca. 3 cm, 2-lobed; basal lobes orbicular, large; distal lobes dolabriform or obovate-oblong, smaller, apex rounded; auricle present, small. Filaments short; anthers acute. Ovary curved. Capsule (immature) curved, oblong. Fl. and fr. Jul–Aug.

• Shaded moist places on slopes. Yunnan (Binchuan).

98. *Impatiens trigonosepala* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 251. 1908.

三角萼凤仙花 *san jiao e feng xian hua*

Plants ca. 30 cm, slender, subglabrous, with few supporting roots, simple or shortly branched at middle, basally long naked. Leaves alternate, sparse; petiole 2–4 cm; leaf blade pale green abaxially, green adaxially, 5–10 × 2–3 cm, membranous, with 1 pair of stipitate basal glands, lateral veins 5 or 6 pairs, fine, base cuneate, attenuate into petiole, margin coarsely crenate, apex shortly acuminate or acute. Inflorescences few, in upper leaf axils, 1-flowered; peduncles 3–5 cm, fibrous, glabrous or puberulent. Pedicels with lanceolate bracts at middle. Flowers pink, ca. 2.5 cm wide. Lateral sepals 2, triangular, ca. 6 × 3 mm, base truncate, apex mucronulate, abaxial midvein simple or carinate, green, glabrous or puberulent. Lower sepal

navicular to funnellform, gradually narrowed into an incurved spur; spur 2–3 cm, longer than limb; mouth vertical, tip acute. Upper petal orbicular or oblate, large, ca. 1.5 cm in diam., base cordate, apex retuse, abaxial midvein narrowly carinate or not; lateral united petals ± clawed, 1.4–1.6 cm, 2-lobed; basal lobes erect or curved, small, apex entire or 2-fid; distal lobes obovate or obcordate, very large, ca. 1 cm wide; auricle inflexed. Filaments short; anthers acute. Capsule (immature) linear, ca. 2 cm. Fl. Aug.

• Shaded moist places by roadsides or canals; 1200–1300 m. E Sichuan.

99. *Impatiens recurvicornis* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 88. 1890.

弯距凤仙花 *wan ju feng xian hua*

Plants annual, 40–50 cm tall, slender, glabrous, laxly branched, or simple. Stem basally long naked. Leaves alternate; petiole 1–2 cm; leaf blade pale green abaxially, dark green adaxially, ovate-lanceolate or lanceolate, 5–8 × 2–2.5 cm, membranous, often with 2 basal glands, lateral veins 6–8 pairs, base acute, attenuate into petiole, margin crenate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, 1-flowered; peduncles spreading, 5–7 cm, slender. Pedicels bracteate above middle; bracts caducous, ovate, 3–4 mm, margin nearly entire or denticulate, apex long aristate-acuminate. Flowers pink-purple, 3–4 cm deep. Lateral sepals 2, subovate, ca. 7 mm, margin inconspicuously denticulate, apex acuminate, abaxial midvein thickened. Lower sepal navicular, 1.3–1.5 cm deep, gradually narrowed into an incurved spur; spur ca. 1.8 cm, slender; mouth oblique, tip acute. Upper petal orbicular, ca. 1.3 cm in diam., base deeply cordate, apex with a flat, stout rostellum (beak) ca. 5 mm, abaxial midvein thickened; lateral united petals ± clawed, 1.8–2 cm, 2-lobed; basal lobes oblong, small; distal lobes oblong, large, apex rounded; auricle inflexed. Filaments short, broad; anthers acuminate. Ovary erect, fusiform. Capsule striate, narrowly linear, ca. 2.5 cm. Seeds few, brown, oblong, compressed, 3–5 mm, slightly rugose. Fl. Aug.

• Moist places in valleys, grasslands along canals; 500–1200 m. W Hubei, Sichuan.

100. *Impatiens cristata* Wallich in Roxburgh, Fl. Ind. 2: 456. 1824.

西藏凤仙花 *xi zang feng xian hua*

Impatiens tricornis Lindley.

Plants annual, 30–80 cm tall, sparsely or densely pubescent. Stem erect, robust, branched. Leaves alternate; petiole 1–2.5 cm, with 2 large globose basal glands; leaf blade lanceolate or ovate-lanceolate, 5–10 × 2–3.5 cm, both surfaces pubescent, lateral veins 9–11 pairs, base cuneate, attenuate into petiole, margin serrate, apex acuminate. Inflorescences short, (1 or) 2–5-flowered; peduncles 5–15 mm. Pedicels slender, bracteate at middle; bracts setose or setose-lanceolate, pilose. Flowers golden-yellow, to 2.5 cm deep. Lateral sepals 2, orbicular, puberulent on veins, 5-veined. Lower sepal saccate, ± puberulent or with caducous hairs, abruptly narrowed into an incurved, short spur. Upper petal orbicular, abaxial midvein cristate; lat-

eral united petals not clawed, 2-lobed; basal lobes orbicular; distal lobes oblong-dolabriform; auricle inflexed, narrow. Anthers obtuse. Ovary fusiform, densely pubescent. Capsule linear, 2.5–3 cm, pilose. Fl. Jul–Sep.

Forest understories, along canals; 2000–3100 m. Xizang [Bhutan, NW India, Nepal].

101. *Impatiens scabrida* Candolle, Prodr. 1: 687. 1824.

糙毛凤仙花 cao mao feng xian hua

Impatiens praetermissa J. D. Hooker.

Plants annual, 30–50 cm tall, rarely taller. Stem erect, green or purple-tinged basally, many branched, pubescent or subglabrous basally. Leaves alternate, sessile or subsessile; petiole with 2 globose basal glands; leaf blade ovate or ovate-lanceolate, 5–15 × 1.5–2 cm, apices of teeth with marginal glands, abaxially pubescent, adaxially sparsely strigose, lateral veins 7–9 pairs, base subrounded, margin sharply serrate, apex acuminate. Inflorescences in leaf axils, 1–3-flowered, shortly pedunculate; pedicels bracteate at middle; peduncles, pedicels, and bracts brown pubescent; bracts persistent, setose or setose-lanceolate, apex long mucronulate. Flowers golden-yellow, purple spotted, ca. 2.5 cm deep. Lateral sepals 2, ovate, sparsely pubescent, apex mucronulate. Lower sepal broadly funnelform, abruptly narrowed into a curved spur ca. 1 cm. Upper petal broadly orbicular, abaxial midvein green, cornute-cristate, crista conspicuous in flowering buds; lateral united petals not clawed, 2-lobed; basal lobes orbicular, short; distal lobes oblong-dolabriform; auricle inflexed, narrow. Anthers obtuse. Capsule linear, 2.5–3 cm, glabrous or sparsely hairy. Fl. Jul–Sep. $2n = 14$.

Forest understories, thickets along riverbanks, shaded moist places. Xizang (Yadong) [Bhutan, India (Sikkim), Nepal].

102. *Impatiens serrata* Bentham ex J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 4: 136. 1860.

藏南凤仙花 zang nan feng xian hua

Impatiens serrulata J. D. Hooker.

Plants annual, 30–70 cm tall, glabrous. Stem slender, simple or branched from base. Leaves alternate, petiolate; leaf blade ovate-lanceolate, 3.5–9 × 1.5–3.5 cm, membranous, ciliate along basal margin, without glands, base broadly cuneate, margin sharply serrate, apex acute or acuminate. Inflorescences axillary, 1(or 2)-flowered; peduncles 1–1.5 cm, slender. Pedicels slender, with setose bracts at middle; bracts persistent, green. Flowers white or yellowish white, with deep purple veins, 1–1.5 cm, 3–5 mm deep. Lateral sepals 2, falcate, small. Lower sepal obliquely navicular, 3–5 mm deep, without spur. Upper petal cucullate, broadly elliptic, apex cuspidate, abaxial midvein thickened; lateral united petals not clawed, 2.5–2.8 cm, 2-lobed; basal lobes oblong, ca. 1 cm; distal lobes broadly obovate, falcate basally. Anthers obtuse. Ovary fusiform. Capsule linear, 2–2.5 cm, apex 5-lobed. Seeds many, obovoid, tuberculate. Fl. Jul–Sep. $2n = 14, 15$.

Forest understories, shaded moist places on slopes; 2900–3300 m. S Xizang (Gyirong, Nyalam) [Bhutan, India (Sikkim), Nepal].

103. *Impatiens falcifer* J. D. Hooker, Bot. Mag. 129: t. 7923. 1903.

镰瓣凤仙花 lian ban feng xian hua

Plants annual, 20–60 cm tall, rarely taller. Stem erect or with procumbent branches, glabrous. Leaves alternate; petiole 5–10 cm, with 2 globose basal glands; leaf blade ovate-oblong, 2.5–5 × 1.5–2 cm, ciliate at base, lateral veins 6–8 pairs, base cuneate, margin sharply serrate, apex acute or acuminate. Inflorescences axillary, 1(or 2)-flowered; peduncles short, 0.6–2 cm. Pedicels bracteate at middle; bracts setose or narrowly lanceolate. Flowers spreading, yellow, red spotted or not, 2–2.5 cm deep. Lateral sepals 2, green, ovate or ovate-oblong, apex mucronulate. Lower sepal funnelform, narrowed into an incurved or erect spur 1–2 cm. Upper petal cucullate, orbicular, ca. 1 cm, apex mucronate, abaxial midvein thickened; lateral united petals clawed, 2.2–2.5 cm, 2-lobed; basal lobes ovate to orbicular, 5–6 mm, small; distal lobes large, broadly obovate, falcate basally, apex rounded; auricle absent. Filaments linear; anthers small. Capsule linear-cylindric, to 2 cm. Fl. Aug–Sep. $2n = 14$.

Understories of *Quercus* forests, grasslands along riverbanks; 2300–3300 m. S Xizang (Dinggyè, Nyalam) [Bhutan, India, Nepal].

104. *Impatiens trichopoda* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 251. 1908.

毛柄凤仙花 mao bing feng xian hua

Plants 10–20 cm tall, slender, glabrous. Stem erect, simple or procumbent in lower part, long naked in lower part, remotely leaved. Leaves alternate; petiole 1–2 cm, slender; leaf blade pale green abaxially, dark green adaxially, ovate, 3–4 × 2–2.5 cm, membranous, lateral veins 3 or 4 pairs, base attenuate into petiole, margin coarsely crenate or crenate-serrate, teeth mucronulate, apex acuminate. Inflorescences 1-flowered; peduncles fibrous, 4–5 cm, 5–6 cm at fruiting. Pedicel bracteate below flower; bracts persistent, small. Flowers ?pink, ca. 2.5 cm wide. Lateral sepals 2, obliquely ovate, ca. 4 mm, inequilateral, base subcordate, hyaline margined, apex stoutly mucronulate, abaxial midvein carinate or cristate. Lower sepal narrowly funnelform, ca. 2.5 cm deep, narrowed into an incurved spur; spur long, acute; mouth oblique, tip mucronulate. Upper petal orbicular, ca. 8 mm in diam., base cordate, apex retuse, abaxial midvein shortly cristate; lateral united petals shortly clawed, 1.1–1.5 cm, 2-lobed; basal lobes tetragonous, small; distal lobes broadly dolabriform, very large, apically retuse; auricle conspicuous. Filaments linear, short; anthers obtuse. Ovary erect. Capsule (immature) linear, ca. 2.5 cm. Seeds ?many. Fl. Aug.

• Forest understories, moist places; 1900–2000 m. Chongqing (Chengkou).

105. *Impatiens diaphana* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 252. 1908.

透明凤仙花 tou ming feng xian hua

Plants 15–20 cm tall, slender, glabrous. Stem erect, slender, simple. Leaves few, crowded at upper part of stem, alternate; petiole short, 1–1.5 cm, slender; leaf blade broadly ovate, 3–5 × 2.5–3 cm, thinly membranous, setose between teeth, 1- or 2-glandular-setose, midvein fine, lateral veins 4 or 5 pairs, base

rounded, attenuate into petiole, hyaline margined, margin crenulate, apex acute. Inflorescences axillary, 1-flowered; peduncles slightly longer than petioles, slender. Pedicel bracteate below flower; bracts linear-lanceolate. Flowers ?pink, ca. 2.5 cm deep. Lateral sepals 2, obliquely ovate, ca. 4 mm, reticulate veined, hyaline margined, apex obtuse. Lower sepal cornute, gradually narrowed into an incurved spur; spur ca. 3 cm, slender; mouth ca. 7 mm, tip cuspidate. Upper petal orbicular, ca. 9 mm in diam., base cordate, apex retuse, abaxial midvein shortly cristate; lateral united petals shortly clawed, 1.5–1.8 cm, 2-lobed; basal lobes very small; distal lobes suborbicular, large, apically retuse; auricle conspicuous. Filaments linear, very short; anthers obtuse. Ovary erect, striate, linear. Capsule not seen. Fl. and fr. unknown.

- 1200–2000 m. Chongqing (Chengkou).

106. *Impatiens commelinoides* Handel-Mazzetti, Symb. Sin. 7: 651. 1933.

鸭跖草状凤仙花 ya zhi cao zhuang feng xian hua

Plants annual, 20–40 cm. Stem procumbent, slender, branched, sparsely strigose in upper part, lower nodes slightly swollen, with many fibrous roots. Leaves alternate; petiole to 2 cm, strigose; leaf blade gray-green abaxially, dark green adaxially, ovate or ovate-rhombic, 2.5–6 × 1–3 cm, abaxially glabrous, adaxially strigose on veins, strigose-ciliate along margin, lateral veins 5–7 pairs, curved, base cuneate, margin sparsely serrate, apex acute or shortly acuminate. Inflorescences 1-flowered; peduncles 2–4 cm, strigose. Pedicels bracteate above middle; bracts persistent, lanceolate or linear-lanceolate, 3–5 mm, herbaceous. Flowers blue-purple. Lateral sepals 2, broadly ovate, ca. 5 × 3 mm, apex cuspidate. Lower sepal broadly funnellform, gradually narrowed into an incurved or involute spur ca. 1.5 cm. Upper petal orbicular, ca. 1 cm in diam., apex emarginate, mucronulate, abaxial midvein green, narrowly carinate; lateral united petals clawed, 1.2–1.5 cm, 2-lobed; both lobes orbicular, distal lobes larger; auricle absent. Filaments linear, compressed, ca. 3 mm; anthers ovoid, apex acute. Ovary erect, fusiform. Capsules linear-cylindric, ca. 1.8 cm. Seeds 5 or 6, brown, oblong-globose, 2–3 mm, smooth. Fl. Aug–Oct, fr. Nov.

- Along canals in valleys, margins of rice fields; 300–900 m. Fujian, Guangdong, Hunan, Jiangxi, Zhejiang.

107. *Impatiens fanjingshanica* Y. L. Chen, Acta Phytotax. Sin. 37: 93. 1999.

梵净山凤仙花 fan jing shan feng xian hua

Plants annual, ca. 50 cm, glabrous. Stem procumbent or prostrate, green or purple, swollen basally, with fibrous, adventitious roots, branched. Leaves alternate; petiole 1–2 cm, with 1 or 2 pairs of subulate basal glands; leaf blade gray-green abaxially, dark green adaxially, ovate or ovate-lanceolate, rarely subrhombic, (2.5–)3–8 × 1.5–3.5 cm, with 2 or 3 pairs of setose glands at basal margin, abaxially glabrous or midvein sparsely pubescent, adaxially white pilose on veins, lateral veins 5–7 pairs, base cuneate, margin crenate-serrate, teeth mucronulate, apex acute or acuminate. Inflorescences in upper leaf axils, 1-flowered; peduncles shorter than leaves. Pedicels slender, brac-

teate above middle; bracts ovate or ovate-lanceolate, 4–5 × 2–2.5 mm, abaxially pilose on midvein, margin denticulate, apex long acuminate. Flowers purple or blue-purple, large, 3–4.5 cm deep. Lateral sepals 2, broadly ovate to orbicular, 2.5–6 × 4–5 mm, margin entire, apex conspicuously mucronulate, abaxial midvein green. Lower sepal broadly funnellform, margin entire, apex conspicuously mucronulate; mouth vertical, ca. 2 cm wide, tip mucronulate. Upper petal cucullate, orbicular, ca. 1.1 cm in diam., apex emarginate, mucronulate, abaxial midvein inconspicuously carinate; lateral united petals ± clawed, ca. 1.7 cm, 2-lobed; basal lobes suborbicular; distal lobes broadly dolabriform, large, apex rounded; auricle inflexed, lunar. Filaments linear, ca. 3 mm; anthers ovoid, apex acute. Ovary fusiform, ca. 3 mm. Capsule linear-cylindric. Seeds 5 or 6, brown, oblong-globose, 1.5–2.5 mm, smooth. Fl. Jun–Oct.

- Moist grasslands in valleys; 700–1500 m. Guizhou (Fanjing Shan).

108. *Impatiens tienchuanensis* Y. L. Chen, Acta Phytotax. Sin. 16(2): 49. 1978.

天全凤仙花 tian quan feng xian hua

Plants annual, flaccid, to 90 cm or more. Stem prostrate or procumbent, with few fibrous roots at nodes, many branched. Leaves alternate; petiole 5–10 mm, slender; leaf blade ovate or ovate-lanceolate, rarely ovate-orbicular, (1–)1.5–3 × 0.8–1.8 cm, membranous, often with 1 or 2 pairs of fibrous-stipitate glands at basal margin, abaxially sparsely pilose on veins, adaxially shiny, lateral veins 5 or 6 pairs, base gradually attenuate into petiole, margin crenate-serrulate, apex slightly acute or obtuse, mucronulate. Inflorescences in upper leaf axils, 1-flowered; peduncles often longer than leaves. Pedicels bracteate above middle; bracts persistent, linear-lanceolate, ca. 4 mm, pilose on midvein, apex long acuminate. Flowers purple, large, 3–4 cm deep. Lateral sepals 2, broadly ovate or ovate-orbicular, 4–5 × 3–3.5 mm, subleathery, sparsely pilose on midvein, 3-veined, base rounded or subcordate, apex reflexed, long mucronulate. Lower sepal purple striate, narrowly funnellform, limb ca. 1.5 cm deep, narrowed into a curved, 2-fid spur ca. as long as limb. Upper petal suborbicular, ca. 1.1 × 1.4 cm, margin undulate, apex retuse, abaxial midvein cristate apically; lateral united petals ± clawed, 1.4–1.5 cm, 2-lobed; basal lobes orbicular; distal lobes broadly dolabriform, ca. 2 × as long as basal lobes, apex rounded or obtuse; auricle inflexed. Filaments broadly linear; anthers acute. Ovary fusiform. Capsule linear, ca. 2.3 cm. Seeds 7 or 8, brown, subglobose, ca. 2 mm, smooth. Fl. Sep–Nov.

- Shaded moist places on slopes, along roadsides; 1100–1200 m. W Sichuan (Hanyuan, Tianquan).

109. *Impatiens napoensis* Y. L. Chen, Acta Phytotax. Sin. 38: 557. 2000.

那坡凤仙花 na po feng xian hua

Plants annual, 0.6–1 m. Stem prostrate or procumbent, sparsely strigose, with adventitious roots at nodes; branchlets erect or ascending, brown or purple-brown pubescent, densely so above. Leaves alternate; petiole 1–3 cm; leaf blade pale green abaxially, dark green adaxially, ovate or ovate-elliptic, 3–

7 × 2–3.5 cm, membranous, with 2 or 3 pairs of stipitate glands at basal margin, abaxially pilose on veins, adaxially adpressed strigose, lateral veins 6 or 7 pairs, base broadly cuneate or subrounded, attenuate into petiole, margin crenate, teeth mucronulate, apex acute or shortly acuminate. Inflorescences in leaf axils of branchlets, 1-flowered. Pedicels 1.5–2.5 cm, slender, densely puberulent, bracteate at middle; bracts persistent, linear or subulate, very small, 1–2 mm. Flowers pink, large, 3.5–4 cm deep. Lateral sepals 2, broadly ovate, 8–10 × 5–6 mm, 6- or 7-veined, sparsely puberulent, apex mucronulate. Lower sepal broadly funnelform, gradually narrowed into an incurved spur ca. 2 cm; mouth vertical, ca. 2 cm wide, tip acuminate. Upper petal suborbicular, 1.5–1.6 cm in diam., apex emarginate, midvein abaxially narrowly carinate; lateral united petals ± clawed, 3.3–3.4 cm, 2-lobed; basal lobes obovate, small, apex rounded; distal lobes dolabriform, apex obtuse; auricle inflexed, lunar. Filaments linear, 4–5 mm; anthers ovoid, apex obtuse. Ovary erect, linear, 4–5 mm. Capsule not seen. Fl. Nov.

- Stony places on slopes; ca. 1300 m. Guangxi (Napo).

110. *Impatiens reptans* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 253. 1908.

匍匐凤仙花 pu fu feng xian hua

Plants annual, ca. 20 cm, glabrous. Stem long prostrate basally, stout, simple. Leaves alternate; petiole 1–2 cm; leaf blade ovate or ovate-elliptic, 5–7 × 2.5–3.5 cm, lateral veins 6 or 7 pairs, base attenuate into petiole, margin crenate-serrate or serrate, apex acuminate. Inflorescences in upper leaf axils, 2- or 3-flowered; peduncles short, 1.5–2 cm. Pedicels 0.5–1 cm, bracteate at base; bracts persistent, ovate-lanceolate, small. Flowers yellow, to 2.5 cm deep. Lateral sepals 2, falcate-ovate, 3–5 mm, 3-veined, midvein apically stoutly mucronulate. Lower sepal subnavicular, limb ca. 1.5 cm deep, narrowed into an incurved spur; spur ca. 2 cm, acute or divaricate; mouth vertical, tip acuminate. Upper petal orbicular, ca. 1.5 cm in diam., base cordate, apex retuse, abaxial midvein fine, narrowly carinate; lateral united petals ± clawed, sessile, ca. 2.2 cm, 2-lobed; basal lobes orbicular, small; distal lobes clawed, dolabriform, apically retuse; auricle reniform. Filaments short; anthers acute. Ovary erect, fusiform. Capsule linear, ca. 1.5 cm. Fl. Aug.

- Moist places at watersides on hills. Guizhou, Hunan.

111. *Impatiens procumbens* Franchet, *Bull. Soc. Bot. France* 33: 447. 1886.

平卧凤仙花 ping wo feng xian hua

Plants annual, flaccid, ca. 1 m or more, glabrous. Stem prostrate or procumbent, nodes with few roots; branches erect, 10–20 cm. Leaves alternate; petiole 0.5–1 cm; leaf blade pale green abaxially, dark green adaxially, ovate or ovate-lanceolate, 2–3 × 1–1.5 cm, lateral veins 5 or 6 pairs, base attenuate into petiole, margin serrulate, apex acuminate. Inflorescences in upper leaf axils, 1- or 2-flowered; peduncles shorter than or ca. as long as leaves. Pedicels 1–1.5 cm, slender, base or above middle with small bracts. Flowers golden-yellow, 1.5–2 cm. Lateral sepals obliquely ovate, subfalcate, 3–4 mm, thick, 3-veined, apex long cuspidate. Lower sepal navicular, limb ca. 1 cm deep, gradually narrowed into an incurved spur ca. 2 cm; mouth

oblique, ca. 8 mm wide, tip acute. Upper petal orbicular, 8–10 mm in diam., apex retuse, abaxial midvein thickened, narrowly carinate; lateral united petals not clawed, ca. 1.7 cm, 2-lobed; basal lobes subtrapezoidal, apex retuse; distal lobes obovate-oblong, ca. 2 × as large as basal lobes, apically retuse; auricle inflexed. Filaments short; anthers acute. Ovary fusiform. Capsule (immature) linear, ca. 1 cm. Fl. Sep.

- Moist places by streams; 1700–2000 m. Yunnan (Dali, Songming, Yangbi).

112. *Impatiens rhombifolia* Y. Q. Lu & Y. L. Chen, *Acta Bot. Yunnan.* 12: 27. 1990.

菱叶凤仙花 ling ye feng xian hua

Plants annual, 20–30 cm tall, glabrous. Stem prostrate, simple. Leaves alternate, petiolate; leaf blade rhombic or subrhombic, 2–5 × 1.2–1.6 cm, glabrous, lateral veins 5 or 6 pairs, base cuneate, with stipitate glands, margin serrate, apex acuminate or acute. Inflorescences in upper leaf axils, often 2-flowered; peduncles 2–3 cm. Pedicels ca. 1 cm, slender, bracteate at base; bracts subulate, ca. 3 mm. Flowers yellow, ca. 1.5 cm wide. Lateral sepals 2, yellow-green, ovate-orbicular, small, apex acute. Lower sepal navicular, ca. 2 cm deep, narrowed into an erect spur; spur long, slender; mouth vertical, tip obtuse. Upper petal orbicular, large, ca. 1.3 × 1.5 cm, apex slightly retuse, mucronulate, abaxial midvein thickened; lateral united petals ca. 1.8 cm, 2-lobed; basal lobes red spotted, orbicular, 6–7 mm; distal lobes dolabriform, apically retuse; auricle inflexed, narrow. Filaments linear; anthers small, apex acute. Ovary erect, fusiform. Capsule linear, ca. 2 cm. Seeds few, ovoid-globose, ca. 2 mm. Fl. Aug–Sep.

- Grasslands at roadsides; 800–1000 m. Sichuan (Dujiang Yan, Emei Shan, Hongya).

113. *Impatiens membranifolia* Franchet ex J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 253. 1908.

膜叶凤仙花 mo ye feng xian hua

Plants 10–20 cm tall, slender, glabrous. Stem erect, simple, basally long naked. Leaves alternate; petiole 1–2 cm; leaf blade pale green abaxially, dark green adaxially, ovate or ovate-oblong, 4–8 × 2.5–3.5 cm, membranous, with 2 stipitate basal glands, lateral veins 6 or 7 pairs, base cuneate, attenuate into petiole, margin serrulate or crenate-mucronulate, apex acuminate. Inflorescences in leaf axils at apex of stem, 2–5-flowered; peduncles fibrous, ca. 2 cm. Pedicels short, bracteate at base; bracts linear-lanceolate, 3–4 mm, hyaline margined, midvein green. Flowers white, ca. 1 cm. Lateral sepals 2, ovate, ca. 3 mm, hyaline margined, apex acuminate. Lower sepal navicular, abruptly narrowed into a slender spur ca. 3 cm; mouth vertical, tip cuspidate, 4–5 mm. Upper petal orbicular, 4–5 mm in diam., apex retuse, rostellate, abaxial midvein thickened, cristate at middle; lateral united petals not clawed, ca. 8 mm, 2-lobed; basal lobes orbicular; distal lobes narrowly dolabriform, ca. 3 × as long as basal lobes, apically retuse; auricle inconspicuous. Filaments broadly linear; anthers small, apex acute. Ovary linear, ca. 9 mm. Capsule linear-lanceolate, ca. 9 mm. Seeds few, brown, oblong, 2–5 mm, tuberculate. Fl. Aug.

• Along canals, shaded moist places at roadsides; 1100–1600 m. Chongqing (Chengkou, Wuxi).

114. *Impatiens pudica* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 254. 1908.

羞怯凤仙花 *xiu qie feng xian hua*

Plants annual, small, ca. 20 cm tall, subglabrous except for peduncles. Stem erect, simple or branched from base, naked. Leaves alternate; petiole 2–4 cm, slender; leaf blade ovate or ovate-lanceolate, 3–5 mm, membranous, lateral veins 3–6 pairs, base cuneate, margin crenate-serrate, apex acute. Inflorescences 1–3-flowered; peduncles erect, 1–4 cm at fruiting, fibrous, pilose. Bracts very small, narrow. Flowers pink, ca. 2.5 cm deep. Lateral sepals 2, broadly oblong, suborbicular, or cucullate, apex acute or mucronulate. Lower sepal funnellform, ca. 2.5 cm deep, narrowed into an incurved spur; spur ca. 2.5 cm, slender; mouth vertical, obtuse. Upper petal orbicular, ca. 1 cm in diam., apex rostellate, abaxial midvein carinate; lateral united petals not clawed, ca. 2.5 cm, 2-lobed; basal lobes suborbicular or tetragonous; distal lobes broadly dolabriform; auricle broad. Filaments short, broad; anthers broadly ovoid, small. Ovary erect. Capsule (immature) erect, apex acute. Fl. and fr. Aug–Oct.

• Moist places on slopes; 1300–2200 m. Sichuan (Emei Shan).

115. *Impatiens uniflora* Hayata, *J. Coll. Sci. Imp. Univ. Tokyo* 25(19): 66. 1908.

单花凤仙花 *dan hua feng xian hua*

Plants annual, 8–50 cm tall. Stem erect, winged, upper part often curved. Leaves alternate; petiole 0.3–2 cm; leaf blade ovate or elliptic to lanceolate-elliptic, 1–10 × 1–5 cm, papery, both surfaces strigose on veins, lateral veins 4 or 5 pairs curved, base cuneate, margin serrate, teeth mucronulate, apex acute. Inflorescences axillary or terminal, 1(or 2)-flowered; peduncles 3–5 cm. Pedicels 1–1.5 cm, often sparsely strigose, 2-bracteate at base; bracts ovate, 1–2 mm. Flowers pale red-purple or white, pale purple spotted or yellow spotted. Lateral sepals ovate or obliquely ovate, ca. 4 mm, apex caudate-acute. Lower sepal saccate, 2–2.5 cm deep, gradually narrowed into an incurved spur ca. 1.5 cm; mouth vertical, 1.2–1.5 cm wide, tip acute. Upper petal subreniform, ca. 9 mm, apex cuspidate, abaxial midvein thickened, narrowly carinate; lateral united petals not clawed, ca. 1.9 cm, 2-lobed; basal lobes oblong; distal lobes oblong-dolabriform, larger, apex obtuse. Filaments compressed, 4–5.5 mm; anthers ovoid, apex acute. Ovary fusiform, ca. 3.5 mm. Capsule ca. 1.7 cm. Seeds many, brown, ellipsoid, ca. 2.5 mm, granular. Fl. Jun–Oct.

• Understories of coniferous forests on mountain slopes, grasslands; 1600–3000 m. Taiwan.

116. *Impatiens pterosepala* J. D. Hooker, *Bull. Misc. Inform. Kew* 1910: 274. 1910.

翼萼凤仙花 *yi e feng xian hua*

Plants annual, 20–60 cm. Stem erect, slender, branched. Leaves alternate; petiole 1.5–2 cm; leaf blade ovate or oblong-ovate, 3–10 × 2.5–4 cm, with 2 globose basal glands, lateral

veins 5–7 pairs, base cuneate, margin crenate, apex acuminate. Inflorescences axillary, 1-flowered; peduncles ca. 4 cm, with 1 lanceolate bract above middle. Flower pale purple or purple-red. Lateral sepals 2, ovate, margin sometimes denticulate at one side, apex acuminate, abaxial midvein narrowly carinate. Lower sepal narrowly funnellform, base narrowed into an incurved, slender spur. Upper petal orbicular, base cordate, apex slightly emarginate, shortly rostellate, abaxial midvein thickened, entire or undulate; lateral united petals ± clawed, 2-lobed; basal lobes oblong; distal lobes broadly dolabriform, larger; auricle conspicuous, lunate. Anthers acute. Capsule linear. Fl. Jul–Sep, fr. Oct–Nov.

• Forest understories, thickets on slopes, along canals, shaded moist places; 1500–1700 m. Anhui, Guangxi, Henan, Hubei, Hunan, Shaanxi, Sichuan.

117. *Impatiens neglecta* Y. L. Xu & Y. L. Chen, *Acta Phytotax. Sin.* 37: 196. 1999.

浙皖凤仙花 *zhe wan feng xian hua*

Plants annual, 30–60 cm tall, glabrous. Stem erect, laxly branched. Leaves alternate; petiole 1.5–4 cm; leaf blade oblong-ovate, 7–13 × 3–6 cm, membranous, often with 1–3 pairs of globose basal glands, lateral veins 5–7 pairs, base cuneate, margin coarsely serrate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, 1-flowered; peduncles erect, 2–3 cm, stout. Pedicels slender, bracteate above middle; bracts persistent, lanceolate, ca. 2 mm. Flowers pale purple, 2.5–3.5 cm deep. Lateral sepals 2, ovate-orbicular, inequilateral, 6–7 mm, apex rounded, mucronulate, abaxial midvein thickened. Lower sepal broadly funnellform, ca. 4.5 cm deep, gradually narrowed into a slightly incurved spur ca. 3.5 cm; mouth vertical, ca. 1.5 cm wide, tip acute. Upper petal broadly ovate, ca. 1 × 1.2 cm, base slightly cordate, apex obtuse, abaxial midvein thickened; lateral united petals clawed, ca. 1.7 cm, 2-lobed; basal lobes elliptic; distal lobes oblong; auricle inflexed, lunar. Filaments linear, ca. 4 mm; anthers ovoid, apex acute. Ovary linear, ca. 4 mm. Capsule linear-cylindric, 3–4 cm. Seeds many, brown, elliptic, 4–5 mm, rugose. Fl. and fr. Jul–Oct.

• Forest understories on slopes, moist places by streams; 1000–1200 m. Anhui, Zhejiang.

118. *Impatiens linocentra* Handel-Mazzetti, *Oesterr. Bot. Z.* 82: 250. 1933.

秦岭凤仙花 *qin ling feng xian hua*

Plants annual, 30–60 cm tall, glabrous. Stem erect, slender, long naked in lower part, branched in upper part. Leaves alternate and petiolate, uppermost leaves subverticillate, shortly petiolate or sessile; petiole to 3 cm; leaf blade pale green abaxially, green adaxially, ovate or ovate-elliptic, 6–9 × 2.5–4.5 cm, membranous, lateral veins 5 or 6 pairs, base cuneate, margin densely crenate-serrate, teeth mucronulate, apex shortly acuminate. Inflorescences in upper leaf axils, 1-flowered; peduncles shorter than leaves, 4–6 cm. Pedicels ca. 4 cm, slender, bracteate above middle; bracts persistent, ovate-lanceolate, 4–5 mm, leathery, apex acuminate. Flowers pink, becoming purple when dry, 2.5–3 cm deep. Lateral sepals 2, lanceolate, 5–6 × 2.5–3 mm, membranous, base dilated and denticulate, apex

mucronulate, abaxial midvein thickened, carinate. Lower sepal funnellform, 2–2.5 cm deep, narrowed into a curved spur; spur fibrous, 1–1.5 cm; mouth oblique, 7–8 mm, tip acute. Upper petal cucullate, cordate, abaxial midvein broadly carinate; lateral united petals not clawed, 0.7–2 cm, 2-lobed; basal lobes ovate; distal lobes broadly and obliquely ovate-orbicular, ca. 2 × as long as basal lobes; auricle orbicular. Filaments linear; anthers acute. Ovary fusiform, ca. 3 mm. Capsule linear, 2.5–3 cm. Seeds few, brown, oblong, 3–4 mm, smooth. Fl. Aug, fr. Sep–Oct.

• Forest margins, shaded moist places in valleys; 800–1800 m. Henan, Shaanxi.

119. *Impatiens henanensis* Y. L. Chen, Acta Phytotax. Sin. 37: 88. 1999.

中州凤仙花 zhong zhou feng xian hua

Plants annual, 40–60 cm tall, glabrous or subglabrous. Stem erect, green or becoming purple in lower part, branched, sparsely glandular in upper part, below nodes dilated. Leaves alternate; petiole short, 5–15 mm; leaf blade sometimes becoming purple abaxially, ovate or elliptic-ovate, 8–15 × 2.5–6.5 cm, with 1 or 2 pairs of basal glands, midvein and lateral veins abaxially prominent, lateral veins 7–11 pairs, base broadly cuneate or subrounded, margin serrate, teeth mucronulate, apex acuminate or caudate-acuminate. Inflorescences in upper leaf axils, 2- or 3-flowered; peduncles conspicuously shorter than leaves. Pedicels 0.5–1.5 cm, slender, slightly elongate at fruiting, bracteate above middle; bracts persistent, recurved, ovate or ovate-lanceolate, 4–5 mm, 3–5-veined, apex acute. Flowers pink-purple, 2–2.5 cm. Lateral sepals 2, obliquely ovate or ovate, 7–8 × 3–4 mm, abaxial midvein narrowly winged, rostellate. Lower sepal saccate, 2.5–3 cm; mouth oblique, ca. 1.5 cm wide, tip acute, base abruptly narrowed into a recurved, 2-lobed spur 6–7 mm. Upper petal suborbicular, 7–8 mm in diam., apex acute, abaxial midvein carinate; lateral united petals shortly clawed, 1.8–2 cm, 2-lobed; basal lobes oblong; distal lobes dolabriform; abaxial auricle inflexed, sublunar. Filaments linear, ca. 5 mm; anthers acute. Ovary fusiform, ca. 5 mm, rostellate. Capsule linear-cylindric, 2.5–3 cm. Seeds many, black-brown, oblong, ca. 4 mm, rugose. Fl. Aug, fr. Sep.

• Forest margins, shaded moist places in valleys; 1200–1500 m. Henan, S Shanxi.

120. *Impatiens imbecilla* J. D. Hooker, Hooker's Icon. Pl. 30: t. 2917. 1910.

纤袅凤仙花 xian niao feng xian hua

Plants annual, (20–)40–60 cm tall, with few supporting roots, glabrous. Stem erect, slender; branchlets spreading, slender. Leaves alternate; petiole 2–4 cm, without basal glands; leaf blade gray-green abaxially, dark green adaxially, ovate or ovate-lanceolate, (3–)5–11 × 2.5–4 cm, membranous, abaxially glabrous, adaxially adpressed strigose, lateral veins 4–7 pairs, base cuneate, attenuate into petiole, margin coarsely crenate-serrate, teeth scarcely mucronulate, apex acuminate or caudate-acuminate. Inflorescences in upper leaf axils, (1 or)2-flowered; peduncles subequal to leaves, 2–3 cm, slender. Pedicels 1–1.5 cm, slender, bracteate at base or below middle; bracts cadu-

cous, ovate-lanceolate, 3–5 mm, pedicels and bracts puberulent. Flowers pink, medium-sized or small, 1.5–2 cm deep. Lateral sepals 2, ovate-orbicular, ca. 4 × 1.5–2 mm, apex long acuminate. Lower sepal navicular-cornute, 1.2–1.5 cm deep, gradually narrowed into an erect or curved spur; mouth oblique, tip acuminate. Upper petal orbicular, 7–8 mm in diam., apex retuse, rostellate, abaxial midvein thickened, cristate; lateral united petals not clawed, 2-lobed; basal lobes spotted, orbicular or subtriangular; distal lobes dolabriform, longer, apex rounded; auricle linear, elongate, inserted into spur. Filaments linear; anthers acute. Ovary linear, ca. 3 mm. Capsule linear, 2.5–3 cm. Fl. Aug–Sep.

• Forest margins on slopes, moist places at roadsides; 1300–2300 m. Sichuan (Emei Shan).

121. *Impatiens distracta* J. D. Hooker, Bull. Misc. Inform. Kew 1910: 272. 1910.

散生凤仙花 san sheng feng xian hua

Plants annual, 30–60 cm tall, subglabrous. Stem erect, slender; branchlets spreading. Leaves alternate; petiole 3–4 cm, without basal glands; leaf blade pale green abaxially, green adaxially, ovate-oblong, membranous, glabrous, lateral veins 6 or 7 pairs, fine, base rounded, or cuneate and attenuate into petiole, margin crenate or crenate-serrate, apex acuminate. Inflorescences in upper leaf axils, 2-flowered; peduncles 2–3 cm, slender, glabrous or puberulent. Pedicels short, 0.3–3 cm, elongate at fruiting, bracteate at base or above; bracts persistent, lanceolate, 3–5 mm. Flowers pink-purple, small, to 2 cm. Lateral sepals 2, ovate, ca. 7 mm, glabrous or puberulent, 3-veined, apex acuminate, mucronulate. Lower sepal navicular, ca. 1.5 cm deep, narrowed into a slightly incurved spur; spur stout, obtuse; mouth oblique, tip acute. Upper petal orbicular, ca. 1.4 cm in diam., base retuse, apex rounded, rostellate, abaxial midvein thickened, broadly carinate; lateral united petals not clawed, 2–2.5 cm, 2-lobed; basal lobes purple along margin, orbicular or crved, small; distal lobes dolabriform, larger, apically often retuse; auricle linear, elongate, inserted into spur. Filaments short, broad; anthers ovoid, apex acute. Ovary erect, fusiform. Capsule erect or curved, linear, 3–4 cm. Seeds many, brown, ovoid-oblong, 3.5–4 mm, glabrous. Fl. Sep.

• Forest margins on slopes, forest understories at roadsides; 1400–2000 m. Sichuan (Ebian, Emei Shan, Hongya).

122. *Impatiens faberi* J. D. Hooker, Bull. Misc. Inform. Kew 1910: 274. 1910.

华丽凤仙花 hua li feng xian hua

Plants annual, 60–70 cm tall, subglabrous. Stem erect, branched. Leaves alternate, sessile or shortly petiolate; petiole 2–4 cm, without basal glands; leaf blade pale green abaxially, green adaxially, broadly ovate-lanceolate or elliptic, 5–15 × 2.5–4.5 cm, rigidly papery, lateral veins 5–8 pairs, base gradually attenuate into petiole, margin serrate or crenate-serrate, apex acuminate. Inflorescences in upper leaf axils, 2-flowered; peduncles erect, 5–10 cm, slender, glabrous or puberulent. Pedicels 1–2 cm, slightly elongate at fruiting, bracteate at base; bracts caducous, lanceolate, 2–3 mm. Flowers purple-red, large, ca. 3 × 2 cm. Lateral sepals 2, green, ovate, 6–8 mm, 3–

5-veined, apex acuminate, abaxial midvein thickened. Lower sepal cornute, 3–4 cm deep, narrowed into an incurved or erect spur; mouth oblique, tip mucronulate. Upper petal orbicular, 1.3–1.7 cm wide, base deeply cordate, apex retuse, abaxial midvein thickened, carinate, sometimes with a small sac or cornute; lateral united petals not clawed, 2–2.5 cm, 2-lobed; basal lobes orbicular; distal lobes dolabriform, large; auricle linear, elongate, inserted into spur. Filaments very short, broad; anthers acute. Ovary erect, fusiform. Capsule striate, linear, 2.5–3 cm. Seeds many, brown, oblong, ca. 4 mm, smooth. Fl. Aug–Sep.

• Forest margins on slopes, moist places at roadsides; 1300–2100 m. Sichuan (Emei Shan).

123. *Impatiens microstachys* J. D. Hooker, Bull. Misc. Inform. Kew 1910: 271. 1910.

小穗凤仙花 xiao sui feng xian hua

Plants annual, 30–60 cm tall, slender, glabrous. Stem erect, laxly branched. Leaves alternate; petiole short, 0.5–1.5 cm, basal glands absent; leaf blade pale green abaxially, dark green adaxially, ovate or ovate-oblong, 4–8 cm, rigid, without or with 1–3 basal glands, lateral veins 6 or 7 pairs, base acute, margin crenate or crenate-serrate, apex acuminate. Inflorescences in upper leaf axils, 3–5-flowered; peduncles spreading or curved, ca. as long as leaves, fibrous. Pedicels 0.5–1 cm, elongate at fruiting, bracteate at base; bracts very small, setose. Flowers spreading, yellowish, small, ca. 1 cm deep. Lateral sepals 2, ovate-orbicular, 3–4 mm, membranous, 5-veined, apex obtuse. Lower sepal funnelform, 1.3–1.5 cm deep, gradually narrowed into an incurved spur ca. 3 × as long as limb; mouth vertical, tip acute. Upper petal orbicular, ca. 6 mm in diam., base cordate, apex retuse, abaxial midvein fine, not thickened; lateral united petals not clawed, ca. 5 mm, 2-lobed; basal lobes orbicular; distal lobes small; auricle ?absent. Filaments linear; anthers acuminate. Ovary erect, fusiform. Capsule erect or slightly curved, linear, ca. 2 cm. Seeds 5, brown, elliptic, 3.5–5 mm, glabrous, shiny. Fl. Aug–Sep, fr. Oct.

• Forest understories on slopes, thickets, shaded moist places, roadsides; 2000–2500 m. Sichuan (Emei Shan, Hongya).

124. *Impatiens lateristachys* Y. L. Chen & Y. Q. Lu, Acta Bot. Yunnan. 12: 22. 1990.

侧穗凤仙花 ce sui feng xian hua

Plants annual, 0.4–1 m tall, glabrous. Stem many branched. Leaves alternate, sessile or shortly petiolate; leaf blade broadly lanceolate, 5–15 × ca. 6 cm, with stipitate basal glands, both surfaces sparsely hairy, lateral veins 6–8 pairs, base acuminate, margin serrate, apex caudate. Inflorescences axillary, racemose, 3–6-flowered, often 5-flowered; peduncles 10–20 cm. Pedicels 1.4–2 cm, elongate at fruiting, bracteate at base; bracts subulate, ca. 2 mm. Flowers red, pale red, or white, ca. 3 cm deep, 1.4–2 cm wide. Lateral sepals 2, subulate, ca. 2 mm, 3-veined. Lower sepal navicular-cornute, 2.5–3 cm deep, narrowed into an erect, stout spur; mouth oblique, ca. 1.4 cm wide. Upper petal suborbicular, 1.5–1.8 cm wide, base deeply cordate, apex obtusely cuspidate, abaxial midvein thickened, narrowly carinate, with 2 cristae; lateral united petals ± clawed, 2.5–3 cm, 2-lobed; basal lobes orbicular; distal lobes dolabri-

form, larger, apically often retuse; auricle linear, 1–1.3 cm, inserted into spur. Filaments short, compressed; anthers acute. Ovary clavate. Capsule ca. 3 cm. Seeds 5–7, black, ovoid-orbicular, ca. 3 × 2 mm. Fl. Aug–Sep.

• Forest margins on slopes; 2000–2500 m. Sichuan (Ebian, Emei Shan).

125. *Impatiens lucorum* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 254. 1908.

林生凤仙花 lin sheng feng xian hua

Plants annual, 30–90 cm tall, glabrous. Stem erect, stout, basally long naked, laxly branched. Leaves alternate, often crowded at apex; petiole 1–2 cm, slender; leaf blade pale green abaxially, dark green adaxially, ovate, 5–10 × 2.5–4 cm, thinly membranous, often with 2 stipitate basal glands, lateral veins 6–8 pairs, fine, base cuneate, margin coarsely crenate, apex acute. Inflorescences in upper leaf axils, 1–3-flowered; peduncles shorter than petioles at anthesis, fibrous, 2- or 3-divaricate. Pedicels short, bracteate at base; bracts persistent, linear, very small. Flowers yellow, small. Lateral sepals 2, ovate-cordate, 3–4 mm, 3-veined, apex glandular. Lower sepal narrowly funnelform, ca. 2 cm deep, with an incurved spur; mouth oblique, tip acute. Upper petal obovate, ca. 8 mm in diam., base cordate, apex retuse, recurved-mucronulate, abaxial midvein with a small sac at middle; lateral united petals not clawed, ca. 3 mm, 2-lobed; basal lobes orbicular; distal lobes ca. 2 × as large as basal lobes, obovate; auricle denticulate. Filaments short, broad; anthers acute. Ovary erect, 5-striate. Capsule (immature) linear. Fl. Aug–Sep.

• Along canals, shaded moist places; 800–2800 m. Sichuan (Emei Shan).

126. *Impatiens piufanensis* J. D. Hooker, Hooker's Icon. Pl. 29: t. 2869. 1908.

块节凤仙花 kuai jie feng xian hua

Plants annual, 20–40 cm tall. Stem erect, basally procumbent, slender, laxly white tomentose in upper part, nodes swollen, with globose tuber and adventitious roots. Leaves alternate; petiole 0.3–2 cm; leaf blade ovate or ovate-lanceolate, 3–6 × 1.5–2.5 cm, spinose on veins, lateral veins 4 or 5 pairs, base cuneate, margin coarsely serrate, teeth mucronulate, apex acuminate. Inflorescences axillary, 1-flowered; peduncles 4–5 cm. Pedicels bracteate at base (but appears as though above middle); bracts narrowly lanceolate. Flower red, medium-sized, ca. 3 cm deep. Lateral sepals 2, elliptic, ca. 5 mm, apex rostellate. Lower sepal funnelform, ca. 2.5 cm deep, narrowed into a curved, slender spur ca. as long as limb. Upper petal orbicular or obovate, apex mucronulate, abaxial midvein carinate; lateral united petals 2-lobed; basal lobes orbicular, apex obtuse; distal lobes dolabriform, apex rounded. Anthers acute. Capsule striate, linear. Seeds brown, subglobose, ca. 3 mm, smooth. Fl. Jun–Aug, fr. Jul–Oct.

• Forest understories, along canals, moist places; 900–2000 m. Chongqing (Nanchuan), Guizhou.

127. *Impatiens epilobioides* Y. L. Chen, Acta Phytotax. Sin. 16(2): 47. 1978.

柳叶菜状凤仙花 liu ye cai zhuang feng xian hua

Plants annual, 30–45 cm tall, slender. Stem erect, upper part and peduncles brown pilose, striate, simple or rarely branched, base often swollen. Leaves alternate, shortly petiolate. Leaves in middle part of stem with petiole ca. 5 mm; leaf blade narrowly oblong, 5–8.5 cm, with 3 or 4 pairs of stipitate glands at basal margin, abaxially brown pilose, lateral veins 7 pairs, base gradually attenuate into petiole, margin serrulate, apex acuminate. Blade of upper leaves linear or linear-lanceolate, 7–11 × 0.5–1.2 cm, margin inconspicuously serrulate, apex long acuminate. Inflorescences axillary, usually (1 or) 2-flowered; peduncles often shorter than leaves. Pedicels 1–2 cm, bracteate at base or basally; bracts lanceolate, 3–4 mm, sparsely brown pilose, apex acuminate. Flowers pink, large, to 4 cm deep. Lateral sepals 2, ovate or oblong-ovate, 5–6 mm, many veined, apex mucronulate, abaxial midvein pilose. Lower sepal striate, broadly funnelform, 1.5–1.7 cm deep, narrowed into an incurved, 2-fid spur 1–1.2 cm. Upper petal obovate-orbicular or suborbicular, 1.2–1.5 cm in diam., apex emarginate, long rostellate, abaxial midvein thickened, cristate above middle, sparsely pilose; lateral united petals ± clawed, 1.8–2.5 cm; basal lobes orbicular, apex mucronulate; distal lobes dolabiform, ca. 2 × as long as basal lobes, apex obtuse or rounded; auricle inflexed, rounded. Filaments linear, short; anthers acute. Ovary fusiform. Capsule (immature) linear, ca. 7 mm. Seeds unknown. Fl. Jul–Aug.

- Riversides; 1000–2500 m. S Sichuan.

128. *Impatiens oxyanthera* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 254. 1908.

红雉凤仙花 hong zhi feng xian hua

Plants annual, 20–40 cm tall, glabrous. Stem erect, simple. Leaves alternate, shortly petiolate or upper leaves subsessile; petiole 1.5–3 cm; leaf blade pale green abaxially, dark green adaxially, ovate or ovate-lanceolate, 6–8 × 3.5–4 cm, membranous, without glands or with few ciliate glands at base, lateral veins 4 or 5 pairs, base cuneate, attenuate into petiole, margin coarsely serrate, teeth mucronulate, apex acute or acuminate. Inflorescences in upper leaf axils, 2- or 3-flowered; peduncles longer than petioles, slender. Pedicels 1–1.5 cm, bracteate at base (but appearing as if at middle in upper flowers); bracts ovate, 2–5 mm, apex cuspidate. Flowers red or purplish red, large, 2–2.5 cm. Lateral sepals 2, orbicular or elliptic, 5–6 × 3–4 mm, 5-veined, apex long mucronulate. Lower sepal subsaccate-funnelform, ca. 2.5 cm deep, narrowed into an incurved spur; spur red striate, shorter than limb; mouth oblique, ca. 1.5 cm wide, tip acute. Upper petal orbicular, ca. 1.5 cm in diam., apex curved, long mucronulate, abaxial midvein thickened, carinate; lateral united petals not clawed, 2–2.5 cm, 2-lobed; basal lobes orbicular; distal lobes curved, narrowly dolabiform or falcate, longer, apex obtuse (or ?mucronate); auricle inflexed, narrow. Filaments subulate, short; anthers ovoid, apex acute. Ovary erect, fusiform. Capsule linear, ca. 1.5 cm. Fl. Sep.

- Forest margins on slopes, shaded moist places at roadsides; 1900–2200 m. W Hubei (Changyang), Sichuan.

129. *Impatiens forrestii* J. D. Hooker ex W. W. Smith, *Notes Roy. Bot. Gard. Edinburgh* 8: 339. 1915.

滇西凤仙花 dian xi feng xian hua

Plants annual, 35–90 cm tall. Stem erect, long naked in lower part, leafy in upper part, glabrous, simple or rarely branched and branchlets slender. Leaves alternate; petiole 1–2 cm, glabrous; leaf blade pale green abaxially, dark green adaxially, ovate-lanceolate or subelliptic, 10–15 × 3–5 cm, membranous, abaxially glabrous, adaxially adpressed strigose, lateral veins 8 or 9 pairs, curved, abaxially prominent, base broadly cuneate, margin regularly serrate, teeth glandular mucronulate, apex acuminate. Inflorescences in upper leaf axils, 2(or 3)-flowered; peduncles erect or slightly curved, ca. as long as leaves or shorter. Pedicels 1–2 cm, bracteate at base (but appearing as if at middle in upper flowers); bracts persistent, ovate-lanceolate, 3–4 mm, setose, apex glandular mucronulate. Flowers purple-red, spotted and striate, 3–3.5 cm deep. Lateral sepals 2, obliquely ovate or suborbicular, 8–9 × 5–6 mm, reticulate veined, apex mucronulate, abaxial midvein not thickened. Lower sepal saccate, ca. 3 cm deep, abruptly narrowed into an incurved spur ca. 1 cm; mouth oblique, ca. 1.8 cm wide, tip acute. Upper petal reniform, 1.8–2 × ca. 2 cm, apex cornute, abaxial midvein thickened, conspicuously carinate; lateral united petals shortly clawed, ca. 3.5 cm, 2-lobed; basal lobes suborbicular, ca. 1.4 cm in diam.; distal lobes falcate-flabellate, ca. 2 × as long as basal lobes, apex obtuse; auricle small. Filaments linear, 3–4 mm; anthers ovoid, apex acute. Ovary linear. Capsule not seen. Fl. Aug.

- Shaded moist places in valleys or by streams; ca. 2600 m. SW Sichuan, NW Yunnan [N Myanmar].

130. *Impatiens lilacina* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 255. 1908.

丁香色凤仙花 ding xiang se feng xian hua

Plants perennial, 30–60 cm tall, glabrous. Stem robust, branched. Leaves alternate, subsessile; leaf blade pale green abaxially, dark green adaxially, ovate or ovate-lanceolate, 5–7 × 2.5–3 cm, rigid, lateral veins 6 or 7 pairs, base cuneate, attenuate into petiole, margin serrate, teeth mucronulate, apex shortly acuminate. Inflorescences in upper leaf axils, 1- or 2-flowered; peduncles fibrous, ca. as long as leaves. Pedicels ca. 1 cm, slender, bracteate at base (but appearing as if at middle in upper flowers); bracts persistent, lanceolate, very small. Flowers pale violet or purple-violet, 3–5 cm. Lateral sepals 2, ovate-falcate, ca. 7 mm, 5-veined, inequilateral, apex acuminate. Lower sepal funnelform, ca. 2 cm deep, gradually narrowed into an incurved spur; mouth vertical, ca. 1.5 cm, tip cuspidate. Upper petal orbicular, ca. 1.3 cm in diam., abaxial midvein thickened, with stout, ascending horn at upper middle; lateral united petals ± clawed, ca. 2.5 cm, 2-lobed; basal lobes broadly orbicular; distal lobes recurved, narrowly dolabiform, longer; auricle rounded. Filaments linear, short; anthers ovoid, apex acuminate. Ovary erect, fusiform. Capsule striate, fusiform, ca. 1.4 cm. Seeds few, dark brown, subglobose, ca. 3.5 mm in diam., tuberculate. Fl. and fr. unknown.

- Mountain forests; ca. 1900 m. Yunnan (Yanjin).

131. *Impatiens meiyana* J. D. Hooker, *Hooker's Icon. Pl.* 30: t. 2958. 1911.

梅氏凤仙花 mei shi feng xian hua

Plants annual, 30–90 cm tall, glabrous. Stem erect, slender, naked in lower part, branched in upper part. Leaves alternate; petiole long, 2–3 cm; leaf blade gray-green abaxially, dark green adaxially, ovate or ovate-lanceolate, 3–7(–9) × 2–4 cm, membranous, lateral veins 6–8 pairs, curved, abaxially glabrous, adaxially adpressed strigose, base cuneate, attenuate into petiole, margin crenate or serrate, teeth glandular-mucronulate, apex subcaudate-acuminate. Inflorescences in upper leaf axils, 2-flowered; peduncles erect or slightly spreading, longer than or ca. equal to leaves, 4–7 cm, slender. Pedicels fibrous, 1–1.5 cm, slightly elongate at fruiting, bracteate at base (but appearing as if at middle in upper flowers); bracts caducous, ovate-lanceolate or lanceolate, 3–5 mm, midvein puberulent, apex long acuminate. Flowers yellow, 2–2.5 cm deep. Lateral sepals 2, ovate, 5–6 mm, 6- or 7-veined, apex mucronulate, abaxial midvein fine, not thickened. Lower sepal navicular, 0.8–1 cm, abruptly narrowed into an incurved spur ca. 2 × as long as limb; mouth vertical, 0.8–1 cm wide, tip acute. Upper petal subtrapezoidal-orbicular, 0.8–1 cm in diam., base cordate, apex retuse, rostellate, abaxial midvein thickened, narrowly carinate; lateral united petals not clawed, 1–1.5 cm, 2-lobed; basal lobes orbicular; distal lobes oblong-dolabriform, longer, apex rounded; auricle rounded. Filaments broadly linear, 3–4 mm; anthers ovoid, apex acute. Ovary erect, fusiform. Capsule linear, 2–3 cm. Seeds many, brown, orbicular, compressed, ca. 3 mm, smooth. Fl. Jul–Aug.

- Moist places at roadsides; 2200–3000 m. Yunnan.

132. *Impatiens odontophylla* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 249. 1908.

齿叶凤仙花 *chi ye feng xian hua*

Plants annual, 10–25 cm, glabrous. Stem erect, simple, often naked in lower part, laxly leafy in upper part. Leaves alternate; petiole 0.5–2.5 cm, slender; leaf blade gray-green abaxially, green adaxially, ovate or ovate-lanceolate, (3–)5–9 × 3–4 cm, thinly membranous, without or with glandular hairs at basal margin, lateral veins 6 or 7 pairs, base cuneate, attenuate into petiole, margin coarsely serrate, teeth mucronulate, apex acute or acuminate. Inflorescences in upper leaf axils, 1-flowered; peduncles shorter than leaves, ca. 2.5 cm. Pedicels fibrous, bracteate above middle; bracts persistent, linear-lanceolate, minute, 1–2 mm. Flowers pink, purple spotted, to 2 cm. Lateral sepals 2, ovate-lanceolate, ca. 5 mm, membranous, 3-veined, base inequilateral, apex long acuminate. Lower sepal red striate, funnellform, ca. 2 cm deep, narrowed into an incurved, short spur; mouth vertical, ca. 1.3 cm wide, tip acute. Upper petal orbicular, ca. 1.2 cm in diam., apex retuse, abaxial midvein fine, apically slightly thickened; lateral united petals shortly clawed, ca. 1.8 cm, 2-lobed; basal lobes orbicular, apically 2-lobed; distal lobes oblong, ca. 2 × as long as basal lobes, apex rounded; auricle inflexed, narrow. Filaments broadly linear, very short; anthers acute. Ovary erect, fusiform, 2–3 mm, puberulent. Capsule not seen. Fl. Aug.

- Forest margins on slopes, shaded moist places along canals; 1600–2400 m. NW Hubei, E Sichuan.

133. *Impatiens bachii* H. Léveillé, *Cat. Pl. Yun-Nan*, 119. 1916.

马红凤仙花 *ma hong feng xian hua*

Plants annual, 40–50 cm tall, subglabrous or sparsely pilose. Stem erect, lower part often naked, upper part simple or shortly branched. Leaves alternate; petiole short, 3–5 mm, stout; leaf blade gray-green abaxially, green adaxially, narrowly lanceolate or oblong-lanceolate, (5–)8–11 × (1–)1.5–3 cm, rigidly papery, midvein and lateral veins conspicuous abaxially, lateral veins 7 or 8 pairs, curved, base broadly cuneate or subrounded, margin inconspicuously serrulate, teeth mucronulate, apex acute or acuminate. Inflorescences in upper leaf axils, 2-flowered; peduncles spreading or ± recurved, shorter than leaves, 6–7 cm. Pedicels 1.5–2 cm, slender, bracteate at base (but appearing as if at middle in upper flowers); bracts persistent, ovate-lanceolate or lanceolate, 2–3 mm. Flowers white, purple spotted, 3.5–4 cm deep. Lateral sepals 2, broadly ovate-orbicular, 6–7 × ca. 4 mm, subleathery when dry, base inequilateral, apex obtuse, mucronulate, midvein not thickened, 5- or 6-veined. Lower sepal funnellform, ca. 1.6 cm deep, abruptly narrowed into an involute spur 1.5–1.8 cm deep; mouth ca. 1.4 cm wide, tip acuminate. Upper petal suborbicular, ca. 1 × 0.8 cm, apex curved rostellate, abaxial midvein thickened, green carinate; lateral united petals ± clawed, 2–2.2 cm, 2-lobed; basal lobes ovate-oblong; distal lobes dolabriform, longer, apex acute; auricle inflexed, subovate. Filaments linear, 4–5 mm; anthers ovoid, apex acute. Ovary fusiform, 3–4 mm. Capsule linear, 3–3.5 cm. Fl. Aug–Sep.

- Dense forests, along canals; 1900–2800 m. Yunnan (Dongchuan, Zhenxiang).

134. *Impatiens crenulata* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 255. 1908.

细圆齿凤仙花 *xi yuan chi feng xian hua*

Plants annual. Branchlets slender, glabrous. Leaves alternate; petiole 1–2 cm; leaf blade ovate, 5–8 × 2.5–3.5 cm, with stipitate basal glands or not, setose, lateral veins 6–8 pairs, base abruptly attenuate into petiole, margin crenulate, apex acuminate. Inflorescences in upper leaf axils, 3- or 4-flowered; peduncles ca. as long as petioles. Pedicels 5–6 mm, slender, bracteate at base; bracts lanceolate, 3–4 mm, membranous, apex acuminate. Flowers yellow, small, 1–1.5 cm deep. Lateral sepals 2, orbicular, ca. 5 mm in diam., 5–7-veined, midvein abaxially cuspidate. Lower sepal navicular, ca. 1.1 cm deep, base gradually narrowed into an involute spur; spur ca. 2 × as long as limb, stout; mouth vertical, tip acute. Upper petal reflexed, orbicular, apex obtuse or acute, abaxial midvein thickened, cristate at middle; lateral united petals not clawed, short, 2-lobed; basal lobes orbicular; distal lobes incurved, orbicular; auricle inflexed. Filaments linear, short; anthers acute. Capsule not seen. Fl. Aug.

- Grasslands on slopes; 1900–2400 m. Chongqing (Chengkou, Wushan).

135. *Impatiens henryi* E. Pritzl, *Bot. Jahrb. Syst.* 29: 455. 1900.

心萼凤仙花 *xin e feng xian hua*

Plants annual, 30–80 cm tall, glabrous, with few support-

ing roots. Stem erect, long naked in lower part, branched in upper part; branchlets spreading, slender. Leaves alternate, petiolate, upper leaves subsessile; petiole 2–3.5 cm; leaf blade pale green abaxially, dark green adaxially, ovate or ovate-oblong, 4–12 × 2.5–5 cm, membranous, lateral veins 2–4 pairs, base broadly cuneate, gradually attenuate into petiole, margin crenate, teeth mucronulate, apex caudate. Inflorescences in upper leaf axils, 3–5-flowered; peduncles shorter than petioles, 2–3 cm. Pedicels 5–7 mm, bracteate at base; bracts persistent, ovate, 2–3 × ca. 1.5 mm, membranous. Flowers yellowish, 1.5–2 cm deep. Lateral sepals 2, broadly ovate or subcordate, ca. 4 × 3–4 mm, 5-veined, apex mucronulate. Lower sepal navicular, ca. 5 mm deep, gradually narrowed into an incurved or involute spur; spur 1.4–1.5(–2) cm, slender; mouth oblique, ca. 1 cm wide, tip acute. Upper petal broadly cordate, 5–6 mm, apex mucronulate, abaxial midvein triangular cristate; lateral united petals not clawed, 1.5–1.6 cm, 2-lobed; basal lobes suborbicular; distal lobes dolabriform, ca. 2 × as long as basal lobes, apex obtuse; auricle inflexed. Filaments linear, ca. 3 mm; anthers broadly ovoid, apex acute. Ovary erect, fusiform. Capsule linear, ca. 1.5 cm. Seeds few, oblong. Fl. Aug.

• Forest understories, shaded moist places on slopes, along canals; 1200–2000 m. NW Hubei.

136. *Impatiens potaninii* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 90. 1890 [*“potanini”*].

陇南凤仙花 long nan feng xian hua

?*Impatiens potaninii* f. *rubrobrunnea* E. Pritzel.

Plants annual, 30–60 cm tall. Stem erect, branched in upper part. Leaves alternate, shortly petiolate, upper leaves sessile; leaf blade ovate or oblong, 5–10 × 3–4.5 cm, with few glandular hairs at base (?with few stipitate glands), base broadly cuneate, margin obtusely crenate-serrate, apex acuminate. Inflorescences axillary, 2- or 3-flowered; peduncles short, 1–2 cm. Pedicels bracteate at base; bracts ovate-lanceolate, 3–4 mm. Flowers yellowish. Lateral sepals 2, suborbicular, often oblique, 4–5 mm in diam., hyaline margined, apex mucronulate. Lower sepal inside of throat brown spotted, funnellform, limb ca. 1.2 cm deep, elongated into an incurved spur 1.6–1.7 cm deep; mouth vertical. Upper petal orbicular or oblate, 6–8 mm wide, abaxial midvein carinate; lateral united petals ca. 1.5 cm, 2-lobed; basal lobes obovate-oblong; distal lobes broadly dolabriform, larger. Filaments flattened; anthers acute. Capsule linear, ca. 1.5 cm. Fl. Aug–Oct.

• Forest margins, shaded moist places in valleys, along canals; 1200–2300 m. Gansu, Shaanxi, Sichuan.

137. *Impatiens bellula* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 262. 1908.

美丽凤仙花 mei li feng xian hua

Plants annual, 30–40 cm tall, glabrous. Stem erect, branched in lower part; branches and branchlets erect and slender. Leaves alternate, subsessile or shortly petiolate; petiole 5–15 mm; leaf blade pale green abaxially, dark green adaxially, ovate-lanceolate, 3–7 × 2.5–3 cm, membranous, glabrous, lateral veins 4–7 pairs, base attenuate into petiole, margin crenulate or ser-

ulate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, 1–3-flowered; peduncles longer than petioles, 0.5–1 cm. Pedicels short, 0.5–1 cm, bracteate at middle or below; bracts persistent, ovate, ca. 2 mm, membranous. Flowers yellowish, 1.5–2 cm deep. Lateral sepals 2, tetragonous, 4–5 mm, 2–5-veined, midvein fine, apex mucronulate. Lower sepal navicular, ca. 1.3 cm deep, narrowed into an incurved spur longer than limb. Upper petal orbicular, ca. 5 mm in diam., hooked at basal margin, abaxial midvein thickened, obtusely rostellate at middle; lateral united petals clawed, ca. 2 cm, 2-lobed; basal lobes orbicular, small, thicker; distal lobes broadly dolabriform, apically retuse; auricle conspicuous. Filaments linear; anthers acute. Ovary erect, fusiform, apex acuminate. Capsule (immature) linear, 1–1.2 cm. Fl. Sep.

• Stony streamsides; 1400–1600 m. Chongqing (Chengkou).

138. *Impatiens fargesii* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 256. 1908.

川鄂凤仙花 chuan e feng xian hua

Plants annual, 30–40 cm tall, glabrous. Stem erect; branches and branchlets spreading. Leaves often crowded at apex of stem, alternate; petiole 2–7 mm; leaf blade pale green abaxially, dark green adaxially, ovate, ovate-lanceolate, or oblong, 5–10 × 2–3 cm, membranous, lateral veins 7 or 8 pairs, fine, base acute, abruptly attenuate into petiole, margin crenulate or crenate-serrate, apex acute or acuminate. Inflorescences 2–4-flowered; peduncles 3–6 cm, very slender. Pedicels 1–1.5 cm, fibrous, bracteate at base; bracts caducous, ovate-lanceolate, 1–2.5 mm. Flowers yellow, small, 7–8 mm wide. Lateral sepals 2, broadly ovate, ca. 4 mm, 7-veined, base subequilateral, apex acuminate, abaxial midvein carinate. Lower sepal navicular, ca. 6 mm deep, narrowed into an incurved or involute spur ca. 1.5 cm, tip rounded, mucronulate. Upper petal orbicular, ca. 7 mm in diam., base retuse, apex rostellate, abaxial midvein shortly cornute; lateral united petals ± clawed, ca. 1.4 cm; basal lobes orbicular, small; distal lobes oblong or narrowly dolabriform, ca. 2 × as long as basal lobes, apically 2-lobed, each lobe subacute at apex; auricle small. Filaments linear; anthers acute. Ovary erect, fusiform. Capsule erect, ca. 1.8 cm, slender. Seeds few, oblong, 3–5 mm, smooth, shiny. Fl. Aug–Sep.

• Grasslands, along canals in valleys, moist places; 1300–1600 m. Chongqing (Chengkou, Wushan), SW Hubei (Hefeng).

139. *Impatiens suichangensis* Y. L. Xu & Y. L. Chen, Acta Phytotax. Sin. 37: 198. 1999.

遂昌凤仙花 sui chang feng xian hua

Plants annual, (20–)25–40 cm tall, glabrous. Stem branched. Leaves alternate; petiole 2–4 cm; leaf blade ovate or oblong-ovate, 2.5–7.5 × 1.5–2.8 cm, membranous, with 1 pair of stipitate basal glands, lateral veins 4 or 5 pairs, base cuneate, margin crenate-serrate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, 2- or 3-flowered; peduncles erect, 1–2.5 cm. Pedicels 5–10 mm, slender, bracteate at base; bracts persistent, lanceolate, ca. 2.5 mm, membranous, apex acute. Flowers yellow, small, ca. 1.5 cm deep. Lateral sepals persistent, ovate, ca. 2.5 mm, apex acute. Lower sepal fun-

nelform, ca. 1.6 cm deep, gradually narrowed into an incurved spur ca. 1.1 cm; mouth vertical, ca. 5 mm wide, tip cuspidate. Upper petal broadly ovate, ca. 3.5×4 mm, apex rounded, mucronulate, abaxial midvein narrowly carinate; lateral united petals not clawed, 8–10 mm, 2-lobed; basal lobes ovate, small; distal lobes dolabriform, apically retuse. Filaments linear, ca. 2 mm; anthers ovoid, apex obtuse. Ovary linear, ca. 2 mm. Capsule fusiform, 1.2–1.8 cm. Seeds brown, elliptic, 2–3 mm, tuberculate. Fl. and fr. Sep–Oct.

- Forest understories; 1100–1600 m. Zhejiang (Suichang).

140. *Impatiens amabilis* J. D. Hooker, Hooker's Icon. Pl. 30: t. 2973. 1911.

迷人凤仙花 mi ren feng xian hua

Plants annual, 60–80 cm tall, glabrous. Stem erect, robust, many branched from base. Leaves alternate; petiole 1–2 cm; leaf blade pale green abaxially, green adaxially, ovate or ovate-lanceolate, $4-8 \times 1.5-3$ cm, rigid, with 1 or 2 stipitate glands at basal margin, lateral veins 6–8 pairs, base rounded or cuneate, attenuate into petiole, margin crenate or crenate-serrate, apex acuminate. Inflorescences in upper leaf axils, 2-flowered; peduncles 2–3 cm. Pedicels 1–1.5 cm, bracteate at base (but appearing as if at middle); bracts ovate, apex acuminate. Flowers pink-purple, 3–5 cm. Lateral sepals 2, 6–7 mm, rigid, base cordate, apex acute. Lower sepal navicular, gradually narrowed into an incurved, 2-denticulate spur ca. as long as limb; mouth oblique, 1–1.2 cm, tip obtuse. Upper petal orbicular, ca. 1.4 cm in diam., base cordate, apex retuse, hooked, abaxial midvein rostellate or shortly carinate at middle; lateral united petals not clawed, ca. 2 cm, 2-lobed; basal lobes orbicular, ca. 5 mm in diam., leathery; distal lobes dolabriform, larger, apically retuse; auricle inflexed, small. Filaments broadly linear, short; anthers ovoid, apex acute. Ovary erect, fusiform. Capsule not seen. Fl. and fr. unknown.

- NC Sichuan (Lixian).

141. *Impatiens rectirostrata* Y. L. Chen & Y. Q. Lu, Acta Bot. Yunnan. 12: 28. 1990.

直喙凤仙花 zhi hui feng xian hua

Plants annual, 30–50 cm tall, glabrous. Stem erect or basally prostrate, many branched in upper part, lower nodes swollen. Leaves alternate; petiole 2–5 cm; leaf blade pale green abaxially, green adaxially, ovate, $10-14 \times$ ca. 5 cm, membranous, glabrous, lateral veins 5–7 pairs, curved, base cuneate or narrowly so, margin serrate, teeth mucronulate, apex acuminate. Inflorescences axillary, 2- or 3-flowered; peduncles 2–5 cm. Pedicels 1–1.2 cm, slender, bracteate at base; bracts elliptic-ovate, $5-6 \times 2-3$ mm, 3-veined. Flowers purple, 1.2–1.4 cm wide. Lateral sepals 2, ovate, 6–8 mm, herbaceous, apex mucronulate. Lower sepal 1.4–1.5 cm deep, limb navicular, gradually narrowed into an involute, slender spur; mouth vertical, obtuse. Upper petal orbicular, ca. 6 mm, apex mucronulate, abaxial midvein erect, green, carinate, rostellate at middle; lateral united petals ca. 1.3 cm, 2-lobed; basal lobes white, small, obtuse-rounded; distal lobes purple, dolabriform, larger, apically retuse; auricle inflexed, narrow. Filaments slender; anthers acute. Ovary erect, fusiform. Capsule not seen. Fl. Sep.

- Forest margins along grasslands; 1800–1900 m. NC Sichuan (Dujiang Yan).

142. *Impatiens mengtzeana* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 256. 1908.

蒙自凤仙花 meng zi feng xian hua

Plants annual, 20–40 cm tall, glabrous. Stem erect, robust, simple, naked basally, with many fibrous roots. Leaves alternate; petiole 2.5–3 cm; leaf blade pale green abaxially, dark green adaxially, ovate, obovate, elliptic, or oblanceolate, $5-10 \times 2.5-3.5$ cm, papery, abaxially glabrous, adaxially sparsely adpressed strigose, rarely ciliate, lateral veins 6–8 pairs, base acuminate, margin crenate-serrate, teeth mucronulate, apex acuminate or shortly acute. Inflorescences in upper leaf axils, 1- or 2-flowered; peduncles longer or shorter than leaves, 3–5 cm. Pedicels 0.5–2.5 cm, bracteate at or near base; bracts caducous, narrowly lanceolate, 3–7 mm. Flowers yellow, large, 3–5 cm deep. Lateral sepals 2, ovate or ovate-lanceolate, $8-10 \times 7-8$ mm, membranous, 3–5-veined, apex acute, abaxial midvein fine, not thickened. Lower sepal red spotted, funnelform or subsaccate, limb ca. 1.4 cm deep, narrowed into an involute spur; spur longer than limb, ca. 2.5 cm; mouth vertical, 1.5–2.2 cm, tip acute or acuminate. Upper petal orbicular to broadly ovate, $1.5-1.8 \times$ ca. 2 cm, abaxial midvein fine, with a crista 2–3 mm high at middle; lateral united petals \pm clawed, 3–4 cm, 2-lobed; basal lobes orbicular to broadly triangular-obovate, ca. 1.2×1.2 cm, large; distal lobes broadly dolabriform to suborbicular, ca. 1.8×1.4 cm, longer, apically slightly retuse; auricle inflexed, reniform. Filaments linear, 6–7 mm; anthers ovoid, apex obtuse. Ovary curved, fusiform. Capsule oblong, 1.5–2.5 cm. Seeds many. Fl. Aug–Oct. $2n = 16^*$.

- Mixed forests, riversides, along canals in valleys, moist places; 600–2100 m. S Yunnan.

143. *Impatiens monticola* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 257. 1908.

山地凤仙花 shan di feng xian hua

Plants annual, 30–60 cm tall. Stem robust, simple and long naked, or branched; branchlets succulent. Leaves alternate; petiole long, 3–4 cm; leaf blade pale green-gray abaxially, green adaxially, ovate-elliptic or obovate, $3-13 \times 3-4.5$ cm, membranous, abaxially glabrous, setose between teeth, adaxially strigose, lateral veins 5–7 pairs, base cuneate, attenuate into petiole, margin crenate or crenate-serrate, apex acuminate. Inflorescences in upper leaf axils, 2-flowered; peduncles longer than petioles, 2–3(–4) cm, elongate at fruiting. Pedicels 1–2 cm, bracteate at base (but appearing as if at middle in upper flowers); bracts persistent, green, lanceolate or ovate-lanceolate, 3–5 mm, herbaceous. Flowers yellowish, ca. 3.5 cm deep. Lateral sepals 2, green, ovate or orbicular, $6-10 \times 6-8$ mm, membranous, 3–5-veined. Lower sepal navicular, limb 1.5–1.8 cm deep, narrowed into an incurved spur; spur orange striate, ca. as long as or longer than limb, slender; mouth vertical, 1.5–2 cm, tip acuminate. Upper petal orbicular, 1.3–1.5 cm, apex cuspidate, abaxial midvein not thickened, narrowly carinate; lateral united petals not clawed, 2–2.5 cm, 2-lobed; basal lobes suborbicular, small; distal lobes dolabriform, larger, apex obtuse-rounded; auricle inflexed, orbicular. Filaments fibrous, 5–6

mm; anthers ovoid, apex obtuse. Ovary linear. Capsule erect, narrowly fusiform, 2–2.5 cm. Seeds many, yellow-brown, oblong, 2–3 mm, smooth. Fl. Jul–Sep, fr. Oct.

• Forest margins, shaded moist places, roadsides; 900–1800 m. Chongqing, Sichuan (Emei Shan, Hongya, Jinyuan Shan).

144. *Impatiens trichosepala* Y. L. Chen, Acta Phytotax. Sin. 37: 95. 1999.

毛萼凤仙花 mao e feng xian hua

Plants annual, small, 15–25 cm tall. Stem erect or ascending from base, succulent, simple, naked in lower part, with many fibrous roots, sparsely yellow-brown pubescent in upper part. Leaves alternate, often crowded at upper part of stem; petiole 1–2.5 cm, laxly or densely yellow-brown pubescent; leaf blade pale green abaxially, dark green adaxially, narrowly lanceolate or oblanceolate, 3.5–10 × 1–2 cm, with 2 or 3 pairs of setose glands at basal margin, abaxially yellow-brown pubescent or only veins pilose, adaxially adpressed strigose, lateral veins 7–9 pairs, base narrowly cuneate, margin crenate-serrate, teeth curved-mucronulate, apex acuminate or shortly caudate. Inflorescences in upper leaf axils; peduncles conspicuously shorter than leaves, 2.5–3.5 cm, sparsely pilose. Pedicels bracteate at base (but appearing as if at middle); bracts linear or linear-lanceolate, ciliate. Flower solitary, yellow, large, 4–4.5 cm deep. Lateral sepals 2, ovate or oblong-ovate, 1–1.2 cm × ca. 6 mm, with multicellular hairs abaxially and at margin, 5-veined, apex acute. Lower sepal broadly funnellform, ca. 2 cm deep, sparsely pilose, gradually narrowed into an incurved spur ca. 2.5 cm; mouth oblique, ca. 2 cm wide, tip acute. Upper petal cucullate, orbicular, ca. 1.2 cm in diam., sparsely multicellular pubescent, apex emarginate, mucronulate, abaxial midvein conspicuously carinate; lateral united petals shortly clawed or ± clawed, ca. 2.2 × 1–1.2 cm, 2-lobed; basal lobes suborbicular; distal lobes broadly dolabriform; auricle inflexed, lunar. Filaments linear, 5–6 mm, apex dilated; anthers ovoid, apex obtuse. Ovary fusiform, 4–5 mm. Capsule (immature) linear-cylindric. Fl. Jul–Sep.

• Sparse forests in valleys, moist grasslands, riversides; 500–900 m. Guangxi, Guizhou, Yunnan (Funing).

145. *Impatiens kamtilongensis* Toppin, Bull. Misc. Inform. Kew 1920: 356. 1920.

甘堤龙凤仙花 gan di long feng xian hua

Plants annual, ca. 30 cm tall. Stem erect or ascending from base, succulent, with dense spreading hairs apically. Leaves alternate, petiolate or sessile in upper leaves; petiole 3–5 cm, with glands; leaf blade broadly elliptic to elliptic, 9–12 × 4.5–5.5 cm, both surfaces sparsely pubescent, base attenuate, margin crenate, apex acute. Inflorescences in upper leaf axils, 2- or 3-flowered; peduncles ca. 2 cm, densely pubescent. Pedicels ca. 1.5 cm, densely pubescent, bracteate at base (but appearing as though at middle); bracts persistent, linear, ca. 8 mm, pubescent. Flower yellow, with reddish spots, ca. 3 cm, ca. 4 cm deep. Lateral sepals 2, ovate, ca. 0.9 mm, apex acuminate, pubescent. Lower sepal navicular, limb ca. 1.2 cm deep, outside pubescent, narrowed into a spur ca. 2.4 cm. Upper petal nearly orbicular, ca. 1.4 × 1.8 cm, apex retuse, abaxial midvein con-

spicuously cristate, crista ca. 4 mm high; lateral united petals ca. 2.5 cm, 2-lobed; basal lobes broadly triangular-obovate, ca. 1.2 × 1.2 cm, apex truncate; distal lobes suborbicular, ca. 1.5 × 1.1 cm, apically obliquely retuse; auricle inflexed, reniform. Filaments linear; anthers ovoid, apex obtuse. Fl. Aug.

Forests; ca. 1100 m. Yunnan (Maguan) [Myanmar].

146. *Impatiens wuchengyihii* S. Akiyama et al., Bull. Natl. Sci. Mus., Tokyo, ser. B, 22: 137. 1996.

吴氏凤仙花 wu shi feng xian hua

Plants annual, more than 30 cm tall. Stem erect or ascending from base, succulent. Leaves alternate, petiolate or nearly sessile in upper leaves; petiole 5–7 cm, pubescent, glandular; leaf blade broadly elliptic to elliptic, 9–15 × 4–7 cm, both surfaces sparsely pubescent, base attenuate, margin crenate, apex acute. Inflorescences in upper leaf axils, 2-flowered; peduncles 2–3.5 cm, densely pubescent. Pedicels 1–1.5 cm, densely pubescent, bracteate at base (but appearing as though at middle); bracts linear, 4–6 mm, densely pubescent, persistent. Flower yellow with reddish spots, ca. 2 cm, ca. 3.5 cm deep. Lateral sepals 2, linear, ca. 1 cm, densely pubescent. Lower sepal navicular, limb ca. 1.2 cm deep, outside pubescent, narrowed into a spur ca. 2 cm. Upper petal orbicular, ca. 1.2 cm, ca. 1.4 cm wide, apex retuse, abaxial midvein conspicuously cristate, crista ca. 3 mm high; lateral united petals ca. 2.1 cm, 2-lobed; basal lobes broadly triangular-obovate, ca. 1.2 × 1 cm, apex truncate; distal lobes suborbicular, ca. 1.2 cm × 8 mm, apically slightly retuse; auricle inflexed, reniform. Filaments linear; anthers ovoid, apex obtuse. Capsule (immature) narrowly ovoid. Fl. Oct.

• Forests; 1700–1900 m. Yunnan.

147. *Impatiens yingjiangensis* S. Akiyama & H. Ohba, J. Jap. Bot. 70: 96. 1995.

盈江凤仙花 ying jiang feng xian hua

Plants annual, 30–70 cm tall. Stem usually simple or shortly branched. Leaves alternate, lower ones caducous; leaf blade gray-green abaxially, dark green adaxially, elliptic or ovate-elliptic, 7–13 × 2.5–5 cm, with 1 or 2 pairs of stipitate glands at basal margin, abaxially laxly adpressed strigose, adaxially glabrous, lateral veins 6 or 7 pairs, base cuneate, narrowed into petiole 1.5–3 cm, margin shallowly crenate, teeth mucronulate, apex acute or acuminate. Inflorescences in upper leaf axils, usually 2-flowered; peduncles 1.5–2 cm, glabrous. Pedicels ca. 2 cm, bracteate at base; bracts persistent, ovate, 4–6 mm, apex acute. Flowers pink, ca. 3 cm deep. Lateral sepals 2, orbicular, ca. 8 mm, apex acute. Lower sepal pink and yellowish, limb navicular, ca. 1.4 cm, abruptly constricted into an involute spur ca. 2.4 cm; mouth vertical, ca. 1.8 cm wide, tip slightly obtuse. Upper petal pink, broadly ovate, ca. 2 × 2.2 cm, apex rounded, abaxial midvein cristate, crista ca. 3 mm high; lateral united petals clawed, ca. 3.8 cm, 2-lobed; basal lobes broadly oblong, ca. 1.6 × 1 cm, apex rounded; distal lobes ovate-dolabriform, ca. 2.5 × 1.1 cm, apex rounded; auricle inflexed, reniform. Filaments linear; anthers obtuse. Ovary fusiform, glabrous. Capsule linear or ?clavate. Fl. May. $2n = 16^*$.

• Dense forests in valleys, moist places on riverbanks or stony places; 1000–1400 m. W Yunnan.

148. *Impatiens begoniifolia* S. Akiyama & H. Ohba, J. Jap. Bot. 70: 99. 1995.

秋海棠叶凤仙花 *qiu hai tang ye feng xian hua*

Plants annual, 15–30 cm tall, slender, with few supporting roots. Stem erect, simple, long naked basally. Leaves alternate; petiole 0.5–2.5 cm, glabrous; leaf blade gray-green abaxially, dark green adaxially, elliptic or ovate, 3–6 × 1.5–2.5 cm, abaxially glabrous, setose between teeth, adaxially white adpressed hairy, lateral veins 5 or 6 pairs, base narrowly cuneate or subrounded, margin shallowly crenate, apex acute. Inflorescences in upper leaf axils, 2-flowered; peduncles 1.5–2 cm, glabrous. Pedicels ca. 1 cm, slender, bracteate at base; bracts persistent, linear, ca. 2 mm. Flowers pink, ca. 3 cm deep. Lateral sepals 2, subulate-lanceolate, ca. 4 mm, apex shortly aristate. Lower sepal pink-white, navicular, base constricted into an erect spur ca. 1.5 cm. Upper petal pink, orbicular, ca. 1 cm in diam., apex emarginate, abaxial midvein thickened, narrowly cristate, crista ca. 1.5 mm high; lateral united petals pink, ca. 2.6 cm, 2-lobed; basal lobes broadly obovate, ca. 1 cm, apex rounded; distal lobes ovate-dolabriform, ca. 1.8 cm, apex rounded; auricle inflexed, reniform. Filaments linear; anthers ovoid, apex obtuse. Ovary fusiform, glabrous. Capsule clavate, apex rostellate. Fl. Oct, fr. Nov.

• Understories of evergreen forests, moist places; 1000–1400 m. Yunnan (Yingjiang).

149. *Impatiens chlorosepala* Handel-Mazzetti, Beih. Bot. Centralbl. 52(Abt. B): 167. 1934.

绿萼凤仙花 *lü e feng xian hua*

Plants annual, 30–40 cm tall. Stem erect, succulent, simple or rarely branched, glabrous. Leaves often crowded in upper part of stem, alternate; petiole 1–3.5 cm; leaf blade pale green abaxially, dark green adaxially, oblong-ovate or lanceolate, 2–11 × 2.5–4.5 cm, membranous, with few glands near base, setose between teeth, abaxially glabrous, adaxially sparsely white adpressed hairy, lateral veins 5 or 6 pairs, curved, base cuneate, attenuate into petiole, margin crenate, apex acuminate. Inflorescences in upper leaf axils, 1- or 2-flowered; peduncles longer than petioles, 3.5–6 cm. Pedicel 1–1.5 cm, bracteate at base (but appearing as if at middle); bracts persistent, lanceolate or linear-lanceolate, 3–4 mm. Flowers reddish, large, 3.5–4 cm deep. Lateral sepals 2, green, obliquely ovate or suborbicular, 8–10 × 5–6 mm, abaxial midvein not thickened. Lower sepal funnelform, limb ca. 1.5 cm deep, abruptly narrowed into an involute or incurved spur; spur pink striate, 2–2.5 cm; mouth vertical, ca. 1.5 cm wide, tip mucronulate. Upper petal cucullate, orbicular, 0.7–1.2 cm, abaxial midvein thickened, narrowly carinate; lateral united petals shortly clawed, ca. 2.5 cm, 2-lobed; basal lobes suborbicular; distal lobes oblong, longer, apex obtuse; auricle conspicuous. Filaments linear, apex dilated; anthers ovoid, apex obtuse. Ovary erect, fusiform. Capsule lanceolate, 1.5–2 cm. Fl. Oct–Dec.

• Sparse forests in valleys, by water in shaded places; 300–1300 m. Guangdong, Guangxi, Guizhou, Hunan.

150. *Impatiens ernstii* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 256. 1908.

川滇凤仙花 *chuan dian feng xian hua*

Plants ca. 25 cm tall, succulent, glabrous. Stem erect, robust, naked basally, laxly branched; branches and branchlets succulent. Leaves alternate, subsessile or very shortly petiolate; leaf blade pale white abaxially, dark green adaxially, linear-oblong or lanceolate, 5–8 cm, lateral veins 7 or 8 pairs, base attenuate into petiole, margin serrulate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, 2-flowered; peduncles 2–3 cm. Pedicels 0.5–1 cm, bracteate at or near base; bracts ovate or ovate-lanceolate, small. Flowers ca. 2 cm wide. Lateral sepals 2, orbicular, 7–9 mm in diam., base inequilateral, apex obtuse, mucronulate, abaxial midvein thickened below middle. Lower sepal shortly funnelform or deeply navicular, gradually narrowed into an incurved spur; spur ca. 2.5 cm, slender; mouth vertical, ca. 1.3 cm, tip acuminate. Upper petal orbicular, 1.2–1.4 cm in diam., apex obtuse, abaxial midvein thickened; lateral united petals ± clawed, ca. 2.2 cm, 2-lobed; basal lobes tetragonous, apex retuse; distal lobes dolabriform, longer, apex obtuse; auricle rounded. Filaments ca. 5 mm, slender; anthers small, apex obtuse. Ovary linear. Capsule not seen. Fl. Aug–Sep.

• Shaded places on slopes; ca. 2500 m. Sichuan (Emei Shan), NE Yunnan.

151. *Impatiens extensifolia* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 257. 1908.

展叶凤仙花 *zhan ye feng xian hua*

Plants glabrous. Stem erect; branches stout. Leaves alternate, petiolate; petiole (3–)5–6 cm; leaf blade oblong-lanceolate or linear-oblong, 10–20 × 3–4 cm, membranous, lateral veins (6 or 7 in lower leaves) 8–10 pairs, curved, base broadly cuneate to cuneate, attenuate into petiole, margin crenate-serrate or crenate-serrulate, teeth mucronulate, apex caudate-acuminate. Inflorescences 1- or 2-flowered; peduncles ca. 15 cm, stout. Pedicels bracteate at base (but appearing as if at middle); bracts narrowly lanceolate, 3–5 mm, hyaline margined. Flowers orange-yellow, 3–4 cm deep. Lateral sepals 2, orbicular, 0.7–1 cm, membranous, 5-veined, apex cuspidate. Lower sepal navicular, limb ca. 1.5 cm deep, gradually narrowed into an incurved or involute spur ca. 2 cm; mouth vertical, tip acute. Upper petal broadly ovate-orbicular, ca. 1.2 cm wide, abaxial midvein fine, narrowly cristate at middle; lateral united petals broadly clawed, ca. 2.5 cm, 2-lobed; basal lobes orbicular; distal lobes broadly dolabriform, longer; auricle inflexed, reniform. Filaments slender; anthers obtuse. Ovary fusiform. Capsule not seen. Fl. Aug–Sep.

• Grasslands along canals, moist places; ca. 1900 m. NE Yunnan.

152. *Impatiens rostellata* Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 8: 209. 1886.

短喙凤仙花 *duan hui feng xian hua*

Plants 40–60 cm tall, glabrous. Stem erect, branched; branchlets erect or spreading, slender, rigid. Leaves alternate; petiole 5–20 mm; leaf blade pale green abaxially, green adax-

ially, ovate or elliptic, 3–4 × 2–2.5 cm, rigid, sometimes with 2 basal glands, setose between teeth, lateral veins 4 or 5 pairs, base cuneate, attenuate into petiole, margin crenate-serrulate, apex acute or acuminate, rarely obtuse. Inflorescences many, in upper leaf axils, 2-flowered; peduncles shorter than leaves, 2–2.5 cm. Pedicels short, 0.8–1 cm, elongate at fruiting, bracteate at base; bracts persistent, ovate, very small, apex acuminate. Flowers white, pink, yellow, or blue. Lateral sepals 2, broadly ovate, 4–5 mm, 3–5-veined, base cordate, apex acute or acuminate. Lower sepal broadly funnellform, navicular, limb to 9 mm deep, gradually narrowed into an involute spur longer than limb; mouth vertical. Upper petal orbicular or broadly ovate, 6–7 mm in diam., abaxial midvein thickened, with a small sac or triangular cristate; lateral united petals not clawed, 6–8 mm, 2-lobed; basal lobes broadly orbicular; distal lobes oblong or narrowly dolabriform, longer, apically retuse; auricle narrowly inflexed. Filaments short, broad; anthers obtuse. Ovary fusiform. Capsule linear or narrowly clavate, 1.2–1.4 cm. Seeds few, brown, oblong or elliptic, smooth, shiny. Fl. Jul–Aug, fr. Sep.

• Forest margins, grasslands, shaded moist places at roadsides; 1600–2400 m. Sichuan.

153. *Impatiens alpicola* Y. L. Chen & Y. Q. Lu, Acta Bot. Yunnan. 12: 25. 1990.

太子凤仙花 tai zi feng xian hua

Plants annual, 20–30 cm tall, glabrous. Stem many branched. Leaves alternate; petiole to 2 cm; leaf blade ovate-elliptic, 2–4 × 1–2 cm, with stipitate basal glands, glabrous, lateral veins 5 pairs, base narrowly cuneate, margin coarsely serrate, teeth mucronulate, apex acute. Inflorescences many, (2 or) 3- or 4-flowered; peduncles 1.5–2 cm. Pedicels ca. 1 cm, slender, bracteate at base; bracts subulate. Flowers yellow, ca. 1.8 × 1.5 cm. Lateral sepals 2, green, small, ca. 2.5 × 2 mm, base cuneate or slightly cordate. Lower sepal obliquely funnellform, ca. 1 cm deep, base gradually narrowed into a curved, slender spur; mouth vertical, 8(–9) mm wide, tip slightly obtuse. Upper petal ovate-orbicular, small, ca. 5 × 4 mm, abaxial midvein green, cristate; lateral united petals not clawed, ca. 1.8 cm; basal lobes obliquely ovate, small, ca. 4 × 2–3 mm; distal lobes broadly dolabriform, apically retuse; auricle absent or inconspicuous. Filaments long, flattened; anthers small, obtuse. Ovary erect, slender. Capsule fusiform. Seeds few, usually 4 or 5, black, narrowly ovoid, ca. 3 × 1.5 mm, tuberculate. Fl. Aug–Sep.

• Forest margins, shaded moist places; 2800–2900 m. Sichuan (Emei Shan).

154. *Impatiens crassiloba* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 258. 1908.

厚裂凤仙花 hou lie feng xian hua

Plants annual, 30–80 cm tall, succulent. Stem erect, glabrous, branched, prostrate basally, nodes with adventitious roots. Leaves alternate; petiole 0.5–2 cm; leaf blade ovate, narrowly ovate, or ovate-lanceolate, 2–7 × 1–3 cm, with few pairs of glands at basal margin, lateral veins 6–8 pairs, base cuneate or broadly cuneate, margin coarsely serrate, teeth mucronulate, apex acuminate or caudate-acuminate. Inflorescences

axillary, 1–3-flowered; peduncles 1.5–2.5 cm, slender. Pedicels short, ca. 1 cm, bracteate at base; bracts narrowly lanceolate, small. Flowers yellow, small, ca. 2.5 cm deep. Lateral sepals 2, lanceolate, small, 3–5 mm, 3–5-veined, apex cuspidate. Lower sepal navicular, narrowed into a curved, long spur. Upper petal orbicular, base obcordate, apex emarginate, mucronulate, abaxial midvein carinate; lateral united petals 2-lobed; basal lobes orbicular, small; distal lobes large, apex 2-lobed. Anthers obtuse. Capsule unknown. Fl. Sep–Oct, fr. Oct–Nov.

• Along canals or rivers, field margins, moist places; 600–1600 m. Guizhou.

155. *Impatiens martinii* J. D. Hooker, Hooker's Icon. Pl. 29: t. 2870. 1908.

齿苞凤仙花 chi bao feng xian hua

Plants annual, succulent, 40–50 cm tall. Stem slender, branched, glabrous. Leaves alternate; petiole 0.5–1 cm; leaf blade ovate, narrowly ovate, or narrowly elliptic, 5–8 × 2–4 cm, lateral veins 6–10 pairs, base broadly cuneate, margin coarsely serrate, teeth mucronulate, apex acuminate or caudate-acuminate. Inflorescences axillary, 2-flowered; peduncles 4–5 cm. Pedicels short, 0.5–1.5 cm, bracteate above middle; bracts narrowly ovate, small, ca. 5 mm, margin serrulate. Flowers white or yellow, small, ca. 1.5 cm deep. Lateral sepals 2, ovate, 6–7 cm, abaxial midvein carinate. Lower sepal funnellform, narrowed into an incurved spur 8–10 mm. Upper petal orbicular, abaxial midvein rostellate, carinate; lateral united petals 1.2–1.4 cm, 2-lobed; basal lobes ovate-orbicular; distal lobes narrowly dolabriform, apex subacute; auricle distinct. Anthers obtuse. Capsule linear. Fl. Jul–Sep, fr. Aug–Oct.

• Shaded moist places; 700–2000 m. Guizhou.

156. *Impatiens ganpiuana* J. D. Hooker, Hooker's Icon. Pl. 29: t. 2873. 1908.

平坝凤仙花 ping ba feng xian hua

Plants annual, 30–60 cm tall. Stem erect, lower part prostrate, succulent, branched, spreading brown tomentose in upper part. Leaves alternate; petiole 1–2 cm, slender; leaf blade elliptic, narrowly elliptic, or lanceolate, 3–6 × 1.5–3.5 cm, sparsely pilose, lateral veins 4–6 pairs, base cuneate, margin coarsely serrate, teeth mucronulate, apex acuminate. Inflorescences 1- or 2-flowered; peduncles 2–2.5 cm. Pedicels ca. 1 cm, bracteate at base; bracts narrowly lanceolate, margin entire. Flowers yellow, small, ca. 2 cm deep. Lateral sepals 2, ovate, 3–4 mm, abaxial midvein narrowly carinate. Lower sepal funnellform, narrowed into an incurved spur; spur ca. 1 cm, slender, apex 2-fid. Upper petal elliptic, abaxial midvein rostellate, carinate; lateral united petals 2-lobed; basal lobes broadly ovate; distal lobes dolabriform, apex 2-lobed; auricle inflexed. Anthers obtuse. Capsule narrowly fusiform. Seeds black, oblong, ca. 2 mm, smooth. Fl. Jul–Aug, fr. Sep–Oct.

• Forest understories, grasslands, shores of ponds, along canals, moist places; 1000–2000 m. Guizhou.

157. *Impatiens lepida* J. D. Hooker, Hooker's Icon. Pl. 29: t. 2867. 1908.

具鳞凤仙花 ju lin feng xian hua

Plants annual, 30–50 cm tall. Stem erect, simple, rarely branched. Leaves alternate; petiole ca. 2 cm, slender; leaf blade ovate-orbicular or ovate-lanceolate, 3–6 × 2–3 cm, lateral veins 4 or 5 pairs, base broadly cuneate, margin coarsely serrate, teeth mucronulate, apex caudate-acuminate. Inflorescences axillary, 1- or 2-flowered; peduncles 4–5 cm, slender. Pedicels bracteate at base; bracts lanceolate, small. Flowers yellow, medium-sized, 2–5 cm. Lateral sepals 2, ovate, apex mucronulate. Lower sepal navicular or saccate, narrowed into an incurved, slender spur. Upper petal broadly orbicular, ca. 2 cm, abaxial midvein carinate; lateral united petals 2-lobed; basal lobes ovate, apex rounded; distal lobes dolabriform, apex rounded. Filaments linear, short; anthers obtuse. Capsule linear. Fl. Aug–Sep, fr. Sep–Oct.

• Forest understories, along canals, shaded moist places; ca. 1000 m. Guizhou, Yunnan (Wenshan).

158. *Impatiens arctosepala* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 259. 1908.

紧萼凤仙花 jin e feng xian hua

Plants annual, 20–30 cm tall, glabrous. Stem erect, slender, simple or branched basally, or long naked basally. Leaves alternate; petiole 2–3 cm; leaf blade gray-green abaxially, dark green adaxially, ovate or ovate-oblong, (5–)6–10 × 2–3 cm, membranous, lateral veins 6 or 7 pairs, curved, base acute or cuneate, attenuate into petiole, margin crenulate, teeth mucronulate, apex acuminate or acute. Inflorescences in upper leaf axils, racemose, (2 or)3- or 4-flowered; peduncles erect, shorter than leaves, 2–5 cm. Pedicels erect, fibrous, ca. 1.5 cm, bracteate at base; bracts recurved, linear-lanceolate, very small, ca. 2 mm. Flowers yellow, *Delphinium*-shaped, to 3 cm deep, narrow. Lateral sepals 2, linear-oblong, 3–5 mm, 1-veined, apex acute or acuminate. Lower sepal cornute, ca. 2.5 cm deep, narrowed into a curved or incurved spur apically 2-lobed or with a groove; mouth oblique, small, tip acuminate. Upper petal cucullate, orbicular, ca. 7 mm in diam., apex obtuse, abaxial midvein fine; lateral united petals not clawed, short, ca. 1.2 cm, 2-lobed; basal lobes oblong; distal lobes dolabriform, longer, apex rounded; auricle inflexed, narrow. Filaments fibrous; anthers obtuse. Ovary fusiform. Capsule linear, 2–2.5 cm. Seeds few, brown, oblong, ca. 3 mm. Fl. Aug–Sep.

• Forest understories, grasslands, shaded moist places on slopes, moist places by streams; 1800–2500 m. NE Yunnan.

159. *Impatiens bodinieri* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 259. 1908.

包氏凤仙花 bao shi feng xian hua

Plants subglabrous, or ± hairy above. Stem erect; branchlets spreading, slender. Leaves often crowded at apices of stem and branches, alternate, lower leaves petiolate, upper leaves sessile; petiole 1.7–2 cm; leaf blade gray-green abaxially, dark green adaxially, obovate-oblong or ovate-oblong, (10–)15–20 × (3.5–)4–5 cm, thinly membranous, abaxially glabrous, adaxially sparsely adpressed strigose, lateral veins 7 or 8 pairs, base cuneate, attenuate into petiole, margin crenate-serrate, teeth mucronulate, apex acuminate. Inflorescences 2- or 3-flowered; peduncles fibrous, 3–4 cm, puberulent. Pedicels 2–3 cm, bracteate at

base or middle; bracts persistent, linear-lanceolate, 3–5 mm. Flowers ca. 2 cm wide. Lateral sepals 2, ovate, 9–11 mm, inequilateral, midvein apically stout cuspidate. Lower sepal funnelform, ca. 1.5 cm deep, base gradually narrowed into a slender spur 0.5–1 cm; mouth oblique, ca. 1.5 cm, tip acute. Upper petal orbicular, 1–1.1 cm in diam., abaxial midvein thickened, cristate at middle; lateral united petals not seen. Filaments short, broad; anthers small, apex obtuse. Ovary erect, fusiform. Capsule shortly stipitate, fusiform, cylindrical, ca. 2 cm. Seeds few, suborbicular, ?compressed, ca. 3 mm, 4–5 mm wide, deeply furrowed on one side. Fl. Jul–Sep.

• Moist places in forests, along canals; 700–1400 m. Guizhou.

160. *Impatiens barbata* H. F. Comber, *Notes Roy. Bot. Gard. Edinburgh* 18: 244. 1934.

髯毛凤仙花 ran mao feng xian hua

Plants annual, 30–45 cm tall, ± pilose. Stem erect, simple or branched in upper part. Leaves alternate; petiole 5–5.5 cm, stout, sparsely hirsute; leaf blade pale green abaxially, dark green adaxially, elliptic or elliptic-ovate, 5–12 × 2.5–5 cm, membranous, abaxially sparsely pubescent, adaxially sparsely hirsute, lateral veins 4–6(–14) pairs, base cuneate, margin coarsely serrate, teeth mucronulate, apex acute or acuminate. Inflorescences in upper leaf axils, usually (1 or)3-flowered; peduncles conspicuously shorter than leaves, 0.5–1.5 cm, slender. Pedicels 0.5–1 cm, bracteate at middle; bracts persistent, linear, 2–4 mm, hirsute. Flowers yellowish, ca. 4 cm deep. Lateral sepals 4; outer 2: obliquely ovate, 7–10 × ca. 4 mm, 3–5-veined, villous, apex mucronulate; inner 2: linear, ca. as long as outer ones. Lower sepal saccate, ca. 2 cm deep; mouth oblique, tip acuminate, narrowed into an incurved, 2-fid spur, barbate. Upper petal orbicular, ca. 2 cm in diam., abaxially pubescent; lateral united petals clawed, 2–2.5 cm, 2-lobed; basal lobes orbicular; distal lobes dolabriform, large, apex acute; auricle large. Filaments short, winged; anthers acute. Ovary fusiform. Capsule (immature) linear, ca. 1 cm, apex rostellate. Fl. Aug.

• Forest understories, open slopes, by streams, along canals; 2000–3000 m. SW Sichuan, NW Yunnan.

161. *Impatiens stenosepala* E. Pritzl, *Bot. Jahrb. Syst.* 29: 453. 1900.

窄萼凤仙花 zhai e feng xian hua

Plants annual, 20–70 cm tall. Stem erect, stem and branches purple or red-brown spotted. Leaves often crowded at apex of stem, or remote, alternate; petiole 2.5–4.5 cm; leaf blade oblong or oblong-lanceolate, 6–15 × 2.5–5.5 cm, with few ciliate glands at basal margin, lateral veins 7–9 pairs, base cuneate, margin crenate, apex caudate-acuminate. Inflorescences axillary, 1–4-flowered. Pedicels slender, bracteate at base; bracts linear. Flowers purple-red, ca. 1.5 cm deep or larger. Lateral sepals 4; outer 2: linear-lanceolate; inner 2: linear. Lower sepal saccate, abruptly narrowed into an incurved short spur. Upper petal broadly reniform, apex emarginate, abaxial midvein carinate, cristate above middle; lateral united petals not clawed, 2-lobed; basal lobes elliptic; distal lobes oblong-dolabriform; auricle suborbicular. Anthers obtuse. Capsule linear. Fl. Jul–Aug, fr. Sep–Oct.

• Forests on slopes, forest margins, grasslands, along water edges, shaded moist places; 800–1800 m. Chongqing, Gansu, Guizhou, Henan, Hubei, Hunan, Shaanxi, Shanxi, Sichuan.

- 1a. Stem with leaves crowded at apex; inflorescences 1- or 2-flowered; flowers relatively large 161a. var. *stenosepala*
 1b. Stem with remote leaves; inflorescences usually 3- or 4-flowered; flowers smaller (ca. 1.5 cm deep) 161b. var. *parviflora*

161a. *Impatiens stenosepala* var. *stenosepala*

窄萼凤仙花(原变种) zhai e feng xian hua (yuan bian zhong)

Impatiens punctata Franchet ex J. D. Hooker (1908), not Wallich ex J. D. Hooker & Thomson (1860).

Stem with leaves crowded at apex. Inflorescences 1- or 2-flowered. Flowers relatively large.

• Forests on slopes, grasslands, along water edges; 800–1800 m. Gansu, Guizhou, Henan, Hubei, Hunan, Shaanxi, Shanxi, Sichuan.

161b. *Impatiens stenosepala* var. *parviflora* E. Pritzl, Bot. Jahrb. Syst. 29: 453. 1900.

小花窄萼凤仙花 xiao hua zhai e feng xian hua

Stem with remote leaves. Inflorescences short, usually 3- or 4-flowered. Flowers smaller (ca. 1.5 cm deep).

• Forest margins, shaded moist places; 1000–1100 m. Chongqing (Nanchuan).

162. *Impatiens lushiensis* Y. L. Chen, nom. nov.

卢氏凤仙花 lu shi feng xian hua

Replaced synonym: *Impatiens heterosepala* S. Y. Wang in B. C. Ding & S. Y. Wang, Fl. Henan. 2: 570. 1988, not *Impatiens heterosepala* J. D. Hooker, J. Bot. 62(Suppl.): 28. 1924.

Plants annual, 40–100 cm tall. Stem erect, branched in upper part, glabrous or sparsely hairy. Leaves alternate, petiolate; leaf blade ovate or ovate-lanceolate, 7–13 × 2–5 cm, lateral veins glabrous or sparsely hairy, base rounded or cordate, margin sharply serrate, apex caudate-acuminate. Inflorescences in upper leaf axils, 2–4-flowered; peduncles 5–15 mm. Pedicel slender, bracteate at middle; bracts persistent, ovate. Flowers purplish, 2.5–3 cm deep. Lateral sepals 4; outer 2: obliquely ovate, larger, ca. 8 × 4–5 mm, abaxial midvein carinate; inner 2: subulate, very small, 1–1.5 mm. Lower sepal inside of throat purple spotted, saccate, abruptly narrowed into an incurved spur 0.8–1 cm. Upper petal reniform-orbicular, ca. 1.2 × 1 cm, apex mucronulate, abaxial midvein carinate; lateral united petals ± clawed, 1.8–2 cm, 2-lobed; basal lobes orbicular; distal lobes oblong-dolabriform, apex rounded-obtuse; auricle inflexed, small. Filaments linear; anthers acute. Capsule linear, ca. 3 cm. Fl. and fr. Aug–Sep.

• Forest understories, grasslands, by streams; 500–1200 m. W Henan.

163. *Impatiens anhuiensis* Y. L. Chen, Acta Phytotax. Sin. 37: 90. 1999.

安徽凤仙花 an hui feng xian hua

Plants annual, 50–60 cm tall, glabrous. Stem erect, striate when dry, branched. Leaves alternate; petiole 1.5–3 cm; leaf blade oblong or ovate-oblong, 7–13 × 2.5–4 cm, lateral veins 7–9 pairs, membranous, base broadly cuneate or rounded, with 1 or 2 pairs of globose glands, margin crenate-serrate, teeth mucronulate, apex acuminate or caudate-acuminate. Inflorescences in upper leaf axils, 2- or 3-flowered, sometimes with 1 abortive flower; peduncles conspicuously shorter than leaves. Pedicels 1–2 cm, bracteate at middle or above middle; bracts persistent, ovate, 3–4 mm, apex long acuminate. Flowers pink, 2–2.5 cm wide. Lateral sepals 4; outer 2: obliquely ovate, ca. 7 × 5 mm, 5–7-veined, apex shortly acute; inner 2: narrowly oblong, ca. 6 × 1.5 mm, apex obtuse. Lower sepal red spotted, broadly funnelform, 2.5–2.8 cm; mouth oblique, ca. 1.5 cm, tip acuminate, apex mucronulate, abruptly narrowed into a curved, 2-fid spur 0.8–1 cm. Upper petal suborbicular, ca. 1.1 × 1 cm, apex retuse, cuspidate, abaxial midvein slightly thickened, inconspicuously carinate; lateral united petals ± clawed, 2.2–2.3 cm, 2-lobed; basal lobes suboblong; distal lobes dolabriform, apex obtuse; auricle inflexed, suborbicular. Filaments linear, ca. 6 mm, apex dilated; anthers ovoid, apex acute. Ovary fusiform, 3–4 mm. Capsule linear-cylindric, 2.5–3 cm. Seeds many, brown, oblong-globose, ca. 4 mm, rugose, apex rostellate. Fl. Sep.

• Stony crevices in valleys; ca. 1200 m. Anhui (Yuexi).

164. *Impatiens corchorifolia* Franchet, Bull. Soc. Bot. France 33: 448. 1886.

黄麻叶凤仙花 huang ma ye feng xian hua

Plants annual, 30–50 cm tall. Stem erect, branched or simple. Leaves alternate; petiole 3–10 mm; leaf blade ovate or ovate-lanceolate, 3–10 × 1.5–3.5 cm, with ciliate basal glands, lateral veins 6 or 7 pairs, base obtuse or slightly acute, margin serrate, apex caudate-acuminate. Inflorescences (1 or) 2-flowered; peduncles shorter than leaves, slender. Pedicels short, bracteate below flowers; bracts persistent, ovate, or with 1 or 2 linear bracts at middle. Flowers yellow, sometimes purple spotted, large, 2.5–3 cm deep. Lateral sepals 4; outer 2: ovate-oblong, apex acuminate; inner 2: oblong-lanceolate or linear, small. Lower sepal saccate, abruptly narrowed into an incurved spur; spur short, 2-fid. Upper petal orbicular, apex retuse, mucronulate, abaxial midvein cristate; lateral united petals ± clawed; basal lobes orbicular; distal lobes broadly dolabriform, larger; auricle large. Anthers obtuse. Capsule linear. Fl. Sep–Oct. $2n = 14^*$.

• Understories of mixed forests, forest margins, shaded moist places; 2100–3500 m. SW Sichuan, NW Yunnan.

165. *Impatiens dimorphophylla* Franchet, Bull. Soc. Bot. France 33: 446. 1886.

异型叶凤仙花 yi xing ye feng xian hua

Plants annual, slender, 20–30 cm tall, glabrous. Stem erect, green or purple-tinged, slender, simple or branched; branches spreading, short. Leaves alternate; leaf blade membranous. Lower leaves with petiole long, ca. 3 cm; leaf blade ovate or ovate-oblong, 5–7 × 2.5–3 cm, with stipitate glands at basal margin, lateral veins 4 or 5 pairs, base attenuate into petiole, margin crenate, teeth mucronulate, apex acute or acuminate.

Upper leaves subsessile; leaf blade ovate-lanceolate, 4–7 × 2.5–3 cm, base cuneate or slightly cordate, apex acuminate. Inflorescences in upper leaf axils, usually 1 (or 2)-flowered; peduncles shorter than petioles, 1–3 cm. Pedicels short, 5–10 mm, bracteate below flowers; bracts persistent, ovate, ca. 2 mm, with stipitate glands at basal margin, lateral veins 4 or 5 pairs. Flowers orange, large, 2.5–3 cm deep. Lateral sepals 4; outer 2: ovate-oblong or orbicular, 4–7 mm, 1-veined, cuspidate; inner 2: same as outer ones in shape, but 1/2 as large, 1-veined. Lower sepal saccate, 1.5–2 cm deep, mouth oblique, ca. 1.5 cm wide, tip acute, abruptly narrowed into an incurved spur; spur short, ca. 5 mm, with a groove or 2-fid. Upper petal orbicular or obcordate, ca. 9 mm, abaxial midvein fine, carinate below apex; lateral united petals ± clawed, ca. 1.7 cm, 2-lobed; basal lobes oblong, small; distal lobes broadly dolabriform, apex rounded, apically retuse; auricle inflexed, narrow. Filaments linear, short; anthers ovoid, apex obtuse. Ovary erect, ovoid-orbicular. Capsule linear, 3–5 cm, apex rostellate. Fl. Sep–Oct.

• Understories of alpine *Pinus* or *Tsuga* forests; 2800–3400 m. SW Sichuan, Yunnan.

166. *Impatiens chiulungensis* Y. L. Chen, Acta Phytotax. Sin. 16(2): 50. 1978.

九龙凤仙花 jiu long feng xian hua

Plants annual, ca. 50 cm tall. Stem striate when dry, branched. Leaves alternate, petiolate; leaf blade narrowly oblong-lanceolate or lanceolate, 3–8 × (0.8–)1–2 cm, rigidly papery, with 2 pairs of ciliate stipitate basal glands, lateral veins 9–11 pairs, base rounded or subcordate, rarely broadly cuneate, margin densely sharply serrate, apex caudate-acuminate. Inflorescences axillary, (1 or)2-flowered; peduncles shorter than leaves. Pedicels bracteate often below flower; bracts persistent, lanceolate or linear-lanceolate, 4–6 mm, apex acuminate. Flowers yellow, large, to 3 cm deep, 1.8–2 cm wide. Lateral sepals 4, thinly membranous; outer 2: ovate or obliquely ovate, 8–9 mm, nearly inequilateral, 5–7-veined, base rounded, apex green and long cuspidate; inner 2: falcate-oblong, very small, 6–7 mm, 1-veined, apex acuminate. Lower sepal slightly curved, saccate, ca. 2 cm deep, abruptly narrowed into a 2-fid, short spur 5–6 mm. Upper petal orbicular, 1.2–1.3 cm, apex emarginate, slightly curved rostellate, abaxial midvein carinate at middle; lateral united petals ± clawed, ca. 1.5 cm, 2-lobed; basal lobes orbicular; distal lobes broadly dolabriform, ca. 3 × as long as basal lobes; auricle absent. Filaments linear; anthers obtuse. Ovary fusiform. Capsule linear, 3–3.2 cm. Seeds 7, brown, oblong, ca. 3 mm, rugose. Fl. Sep–Oct.

• Dense forests; ca. 2700 m. SW Sichuan (Jiulong).

167. *Impatiens gasterocheila* J. D. Hooker, Bull. Misc. Inform. Kew 1910: 272. 1910.

腹唇凤仙花 fu chun feng xian hua

Plants annual, 30–40 cm tall, slender, glabrous. Stem erect, long naked basally, ± branched. Leaves alternate; petiole long, 2–3 cm, slender, without glands; leaf blade ovate, 3–4 × 2–2.5 cm, membranous, lateral veins 6 or 7 pairs, fine, base cuneate, attenuate into petiole, margin serrulate, apex acuminate. Inflorescences 1-flowered; peduncles slender. Pedicels 1–1.5 cm,

elongate at fruiting; bracts few, fibrous, 1–3 mm. Flowers pink-purple, large, ca. 2 cm deep. Lateral sepals 4, outer 2: linear-lanceolate, ca. 7 × 2–3 mm, apex long acuminate; inner 2: linear, ca. 4 mm, apex acute. Lower sepal incurved, turgid; mouth horizontal, navicular, abruptly narrowed into an erect, short spur. Upper petal orbicular, ca. 1.2 cm in diam., apex rostellate, abaxial midvein thickened, carinate; lateral united petals broadly clawed, 1.8–2 cm, 2-lobed; basal lobes oblong, apex subacute; distal lobes obovate-oblong, ca. 1.5 × as long as basal lobes; auricle inflexed. Filaments linear, short; anthers obtuse. Ovary striate, fusiform. Capsule erect, linear, ca. 2 cm. Seeds few, brown, broadly ovoid or globose, flattened, ca. 2.5 mm, smooth. Fl. Aug–Sep.

• Shaded moist places on slopes, streamsides, roadsides; ca. 900 m. Sichuan (Ebian).

168. *Impatiens cornucopia* Franchet, Pl. Delavay. 121. 1889.

叶底花凤仙花 ye di hua feng xian hua

Plants annual, 40–50 cm tall, with few supporting roots; glabrous or sparsely glandular hairy or arachnoid-hairy. Stem erect, simple or virgate-branched from base. Leaves alternate; petiole 1.5–3 cm, with few stipitate glandular hairs at base; leaf blade pale green abaxially, green adaxially, ovate or ovate-lanceolate, 5–8.5 × 2.5–3.5 cm, membranous, abaxially glabrous, adaxially adpressed pilose, lateral veins 6–8 pairs, base cuneate or subrounded, margin crenate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, racemose, laxly 4–6-flowered; peduncles shorter or longer than petioles, 4–6 cm. Pedicels 1–2 cm, slender, bracteate at base; bracts caducous, green or pink-purple, broadly ovate, 4–6 × 2–3 mm, membranous, apex acute. Flowers yellow, purple-tinged, 1.5–2 cm deep. Lateral sepals 4, membranous; outer 2: oblong or ovate-oblong, ca. 5 mm, inequilateral, apex cuspidate; inner 2: lanceolate, shorter than outer ones, 1-veined, apex acuminate. Lower sepal navicular, ca. 1.5 cm deep, gradually narrowed into an incurved spur; spur 4–5 mm, slender, cornute. Upper petal orbicular, 0.8–1 cm wide, apex retuse, abaxial midvein not thickened; lateral united petals not clawed, ca. 1.5 cm, 2-lobed; basal lobes oblong; distal lobes longer, narrow, apex rounded; auricle inflexed. Filaments linear; anthers obtuse. Ovary erect, fusiform. Capsule (immature) linear. Fl. Aug.

• Broad-leaved forests, forest margins by streams; 1900–2600 m. SW Sichuan, NW Yunnan.

169. *Impatiens xanthocephala* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 12: 206. 1920.

黄头凤仙花 huang tou feng xian hua

Plants annual, 10–16 cm tall, slender, glabrous, with few supporting roots and fibrous roots. Stem erect, often with opposite branches basally, rarely simple, naked at base. Leaves alternate, petiolate or upper leaves subsessile; petiole 0.5–1 (–2) cm; leaf blade green on both sides, ovate or ovate-oblong, 1–2 × 0.8–1 cm, membranous, lateral veins 2 or 3 (or 4) pairs, inconspicuous, base broadly cuneate or rounded, margin remotely crenate or shallowly undulate, teeth mucronulate, apex obtuse. Inflorescences in upper leaf axils, 1- or 2-flowered; peduncles often ca. 1/2 as long as leaves. Pedicels 5–10 mm, slender,

bracteate above middle; bracts persistent, lanceolate, ca. 2 mm. Flowers golden-yellow, large, ca. 3.5 cm deep. Lateral sepals 4, outer 2: orbicular, 2–3 mm, submembranous, midvein fine, apex mucronulate; inner 2: ovate, very small, membranous, midvein inconspicuous, apex obtuse. Lower sepal purple spotted, funnelform, 2–2.5 cm deep, gradually narrowed into an incurved, slender spur 1.5–2 cm; mouth vertical, ca. 8 mm wide, tip acute. Upper petal suborbicular, 5–6 mm, apex emarginate, abaxial midvein thickened, carinate at middle; lateral united petals not clawed, 2.3–2.9 cm, 2-lobed; basal lobes orbicular, very small, 2–3 mm in diam.; distal lobes broadly dolabriform, 5–7 mm, apex rounded; auricle inflexed, very small. Filaments linear, 4–5 mm; anthers obtuse. Ovary erect, fusiform, ca. 5 mm. Capsule not seen. Fl. Aug.

• Forest margins, grasslands, limestone areas; ca. 3100 m. SW Sichuan, NW Yunnan.

170. *Impatiens hengduanensis* Y. L. Chen, Acta Phytotax. Sin. 28: 484. 1990.

横断山凤仙花 *heng duan shan feng xian hua*

Plants annual, 10–15 cm tall. Stem erect, slender, simple or rarely branched in upper part, yellow-brown pilose. Leaves alternate; petiole 0.5–1 cm, slender, yellow-brown pilose; leaf blade pale green abaxially, dark green adaxially, ovate or oblong-ovate, 2–3 × 1–1.5 cm, membranous, with 1 or 2 pairs of basal glands, abaxially yellow-brown pilose on veins, adaxially sparsely strigose, lateral veins 3–5 (or 6) pairs, curved, base cuneate, margin crenate-serrate, apex acute. Inflorescences in upper leaf axils, 1-flowered; peduncles ca. as long as leaves or slightly longer, slender, 0.6–1 cm, sparsely yellow-brown puberulent. Pedicels bracteate at base; bracts persistent, ovate-lanceolate, 1–2 mm. Flowers golden-yellow, small, ca. 1.5 cm deep. Lateral sepals 4, outer 2: ovate-lanceolate, ca. 3 × 1 mm, 3-veined, apex mucronulate; inner 2: linear-lanceolate, hyaline margined, minute, ca. 1.5 × 0.5 mm. Lower sepal narrowly funnelform, 1–1.5 cm deep, gradually narrowed into a recurved or incurved spur; mouth oblique, ca. 7 mm wide, tip acute. Upper petal cucullate, elliptic, ca. 5 × 4–5 mm, apex rounded, abaxial midvein not thickened, puberulent; lateral united petals clawed, ca. 1.2 cm, 2-lobed; basal lobes ovate-oblong, apex acuminate; distal lobes dolabriform, apex obtuse; auricle inflexed, narrow. Filaments linear, ca. 3 mm; anthers ovoid, apex obtuse. Ovary erect, fusiform, ca. 2.2 mm. Capsule (immature) fusiform, 4–5 mm. Fl. Aug–Sep.

• Margins of evergreen forests; 1400–1500 m. NW Yunnan (Gongshan).

171. *Impatiens noli-tangere* Linnaeus, Sp. Pl. 2: 938. 1753.

水金凤 *shui jin feng*

Plants annual, 40–70 cm tall. Stem succulent, robust, many branched in upper part, glabrous, lower nodes often swollen with fibrous roots. Leaves alternate, upper leaves shortly petiolate or sessile; petiole 2–5 cm, slender; leaf blade green abaxially, dark green adaxially, ovate or ovate-elliptic, 3–8 × 1.5–4 cm, both surfaces glabrous, base cuneate or rounded, margin crenate, teeth mucronulate, apex obtuse, rarely acute. Inflorescences 2–4-flowered; peduncles 1–1.5 cm. Pedicels 1.5–

mm, bracteate above middle; bracts persistent, lanceolate, 3–5 mm, herbaceous. Flowers yellow. Lateral sepals 2, ovate or broadly ovate, 5–6 mm, apex acute. Lower sepal sparsely orange spotted, broadly funnelform, gradually narrowed into an incurved spur 1–1.5 cm. Upper petal orbicular or suborbicular, ca. 1 cm in diam., apex emarginate, rostellate, abaxial midvein green cristate; lateral united petals not clawed, 2–2.5 cm, 2-lobed; basal lobes oblong, small; distal lobes orange spotted at base, broadly dolabriform; auricle narrow. Filaments linear, slightly swollen above; anthers ovoid, apex acute. Ovary erect, fusiform. Capsule linear-cylindric, 1.5–2.5 cm. Seeds many, brown, oblong-globose, 3–4 mm, smooth. Fl. Jul–Sep. $2n = 20$.

Forest understories, forest margins, grasslands, along canals; 900–2400 m. Anhui, Gansu, Guangdong, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Zhejiang [Japan, Korea, Mongolia, Russia (Far East, Siberia); C and SW Asia, Europe, NW North America].

172. *Impatiens longialata* E. Pritzl, Bot. Jahrb. Syst. 29: 454. 1900.

长翼凤仙花 *chang yi feng xian hua*

Plants annual, 30–70 cm tall, glabrous. Stem erect, branched. Leaves alternate, shortly petiolate; leaf blade gray-green abaxially, green adaxially, elliptic or ovate-oblong, 5.5–10 × 3.5–5 cm, membranous, lateral veins 6 or 7 pairs, base rounded or cordate, margin coarsely crenate, teeth retuse and glandular-mucronulate, apex obtuse or slightly acute. Inflorescences in upper leaf axils, 2- or 3 (or 4)-flowered; peduncles longer than petioles or 2.5–3 cm. Pedicels 1–1.5 cm, slender, elongate at fruiting, bracteate above middle; bracts persistent, ovate, 2–3 mm, apex acuminate. Flowers yellowish, large, 1.5–2 cm deep. Lateral sepals 2, broadly ovate or subcordate, 5–6 × 4–5 mm, hyaline margined, green veined, mucronulate. Lower sepal purple spotted, funnelform, 1.5–2 cm deep, gradually narrowed into an incurved spur; spur 1–1.5 cm, slender; mouth vertical, 6–7 mm wide, tip mucronulate. Upper petal subreniform, 0.8–1 cm, apex shortly rostellate, abaxial midvein slightly thickened, narrowly carinate; lateral united petals long clawed, ca. 2 cm, 2-lobed; basal lobes orbicular, apex obtuse or retuse; distal lobes narrowly elliptic, large, margin undulate, apex obtuse. Filaments linear; anthers ovoid, apex acute. Ovary fusiform. Capsule linear, 2–2.5 cm. Seeds few, brown, oblong, 3–4 mm, smooth. Fl. Jul–Aug, fr. Sep–Oct.

• Moist grasslands in valleys, along canals, roadsides; 500–2000 m. W Hubei, E Sichuan.

173. *Impatiens sutchuenensis* Franchet ex J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 262. 1908.

四川凤仙花 *si chuan feng xian hua*

Plants annual, 30–50 cm tall, glabrous. Stem erect, robust; branches and branchlets elongate, slender. Leaves alternate. Lower and middle leaves long petiolate; petiole 3–5 cm; leaf blade ovate or oblong, 4–5 cm, membranous, base obtuse or rounded, apex obtuse. Upper leaves sessile or shortly petiolate; leaf blade pale green abaxially, green adaxially, oblong, glabrous, lateral veins 6–8 pairs, base cordate, margin coarsely crenate or crenate, teeth mucronulate. Inflorescences in upper

leaf axils, 2- or 3-flowered; peduncles erect, ca. 1/2 as long as leaves, 2–2.5 cm, slender. Pedicels ca. 1 cm, slender, bracteate at middle; lowest pedicels without bracts. Flowers yellow-white, 1.5–2 cm deep. Lateral sepals 2, orbicular or broadly ovate, 6–8 mm, membranous, reticulate veined, apex mucronulate. Lower sepal funnellform, ca. 3 cm deep, gradually narrowed into an incurved long spur; mouth slightly oblique, ca. 1.5 cm, tip acute. Upper petal orbicular or obovate, 1–1.2 cm wide, apex cuspidate, abaxial midvein slightly thickened; lateral united petals not clawed, 2–3 cm, 2-lobed; basal lobes oblong or orbicular, apex retuse; distal lobes broadly or narrowly dolabriform, slightly curved, ca. 2 × as long as basal lobes, sometimes setose apically; auricle narrow. Filaments short, broad; anthers acute. Ovary erect, fusiform. Capsule linear. Fl. Aug–Sep.

• Forests on slopes, along canals, moist places; 1200–1900 m. W Hubei, Shaanxi, Sichuan.

174. *Impatiens odontopetala* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 90. 1890.

齿瓣凤仙花 chi ban feng xian hua

Plants annual, 40–50 cm tall, glabrous, roots many, fusiform, fibrous. Stem erect, slender, branched; branches spreading. Leaves alternate, shortly petiolate or sessile; petiole 2–3 cm; leaf blade gray-green or becoming purple abaxially, green adaxially, oblong or ovate-oblong, 3–4 × 1.5–3.5 cm, membranous, lateral veins (5 or) 6–9 pairs, base rounded or cordate, margin shallowly crenate, rarely nearly entire, apex obtuse or acute. Inflorescences in upper leaf axils, 1- or 2-flowered; peduncles longer than petioles, 3–3.5 cm. Pedicels 1–1.5 cm, bracteate at middle or above; bracts persistent, linear-subulate, minute, 1–2 mm. Flowers yellowish, 2–2.5 cm deep. Lateral sepals 2, suborbicular or ovate-orbicular, 6–7 mm wide, rigid, 5-veined, apex mucronulate. Lower sepal red spotted, funnellform, 2–2.4 cm deep, narrowed into an incurved spur ca. 1/2 as long as limb; mouth vertical, tip acuminate. Upper petal saccate, orbicular, small, ca. 8 × 9 mm, apex hooked or rostellate, abaxial midvein thickened, cristate above middle, crista subtriangular or ligulate; lateral united petals ± clawed, 1.7–2 cm, 2-lobed; basal lobes oblong, apex obtuse; distal lobes dolabriform, longer, apex rounded; auricle inflexed, elongate. Filaments linear, short; anthers acute. Ovary erect, fusiform. Capsule linear, 1.5–2 cm. Fl. Aug–Sep, fr. Oct.

• Forest understories; ca. 1800 m. Gansu, Sichuan.

175. *Impatiens latebracteata* J. D. Hooker, Bull. Misc. Inform. Kew 1910: 273. 1910.

阔苞凤仙花 kuo bao feng xian hua

Plants annual, glabrous. Stem slender, branched. Leaves alternate; petiole 0.5–3 cm, slender, glands absent; leaf blade oblong or ovate-oblong, 3–5 × 2–2.5 cm, rigid, lateral veins 6 or 7 pairs, midvein fine, base rounded or cordate, margin crenate, teeth mucronulate, apex obtuse. Inflorescences shorter than leaves, 2–5-flowered; peduncles slender. Pedicels 5–10 mm, bracteate at middle; bracts persistent, orbicular, 3–4 mm wide, margin denticulate. Flowers yellow, ca. 1 cm wide. Lateral sepals 2, broadly ovate to orbicular, 6–8 mm, membranous, 4–8-veined, inequilateral, apex obtuse, mucronulate. Lower se-

pal funnellform, wholly curved; mouth subvertical, ca. 2 cm deep. Upper petal orbicular, apex obtuse, abaxial midvein thickened, cristate; lateral united petals not clawed, 1.5–1.7 cm, 2-lobed; basal lobes orbicular or broadly oblong; distal lobes dolabriform, ca. 2 × as large as basal lobes, apex rounded; auricle inflexed. Filaments very short; anthers ovoid, apex acute. Ovary erect, fusiform. Capsule erect, narrowly elliptic, 1.5–2(–3) cm, both ends constricted. Seeds few, brown, oblong or obovoid, 4–4.5 mm, nearly smooth. Fl. Aug.

• Forest margins, slopes, shaded moist places; ca. 1900 m. Shaanxi (Huxian), Sichuan (Emei Shan, Hongya).

176. *Impatiens oligoneura* J. D. Hooker, Hooker's Icon. Pl. 30: t. 2966. 1911.

少脉凤仙花 shao mai feng xian hua

Plants annual, 50–60 cm tall, glabrous. Stem erect, robust; branches and branchlets slender. Leaves alternate; petiole 1–4 cm; leaf blade pale green abaxially, green adaxially, ovate or elliptic, 4–6 × 2–3 cm, membranous, without or with few basal glands, glabrous, shiny, lateral veins 3–5 pairs, base cuneate, margin coarsely crenate serrate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, 1-flowered; peduncles longer than petioles, 3–4 cm. Pedicels bracteate above middle; bracts caducous, broadly ovate or orbicular, 4–5 mm, apex cuspidate, denticulate. Flowers yellow, red spotted, 3–3.5 cm deep. Lateral sepals 2, obliquely ovate or ovate-oblong, margin denticulate, or entire, apex acuminate, abaxial midvein thickened, winged. Lower sepal funnellform, ca. 2 cm deep, narrowed into a slender spur shorter than limb; mouth oblique, ca. 1.2 cm wide, tip acute. Upper petal suboblate, ca. 1.7 cm, apex obtuse, rostellate, abaxial midvein thickened, carinate; lateral united petals broadly clawed, ca. 2.2 cm, 2-lobed; basal lobes orbicular; distal lobes reflexed, orbicular or broadly dolabriform, large, apex rounded; auricle inflexed, elongate. Filaments short, broad; anthers ovoid, apex acute. Ovary erect, fusiform. Capsule (immature) linear. Fl. Jul–Sep.

• Forest understories; ca. 2900 m. W Sichuan.

177. *Impatiens nasuta* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 263. 1908.

大鼻凤仙花 da bi feng xian hua

Plants annual, 60–100 cm tall, glabrous. Stem erect; branchlets elongate, slender, remotely leafy. Leaves alternate; lower and middle leaves long petiolate; upper leaves shortly petiolate or sessile; petiole 3–6 cm, slender; leaf blade 4–7 × 2.5–3.5 cm, membranous, in middle leaves ovate or ovate-oblong, lateral veins 7–11 pairs, apex subrounded; in upper leaves oblong, base cordate, margin coarsely crenate, teeth retuse, apex obtuse. Inflorescences in upper leaf axils, 1- or 2(or) 3-flowered; peduncles shorter than leaves, 2–3 cm. Pedicels 1–1.5 cm, bracteate at middle; bracts persistent, linear-subulate, ca. 2 mm. Flowers deep purple-red, large, 3–3.5 cm deep. Lateral sepals 2, obliquely ovate or suborbicular, 6–7 mm, membranous, inequilateral, apex cuspidate, reticulate. Lower sepal purple spotted, broadly funnellform, 1.5–2 cm deep, gradually narrowed into an incurved spur 1–1.5 cm, with a groove; mouth vertical, 1–1.1 cm wide, tip acute. Upper petal cucullate, orbicular, 1–1.2 cm

wide, apex slightly emarginate, abaxial midvein thickened, cristate above middle, crista long, elephant-trunk-shaped; lateral united petals not clawed, 2.5–3 cm, 2-lobed; basal lobes broadly oblong, ca. 1.2 cm wide; distal lobes broader, gradually narrowed; auricle inflexed, purple spotted, long. Filaments linear, very short; anthers acute. Ovary erect, fusiform. Capsule linear, 2.5–3 cm, curved. Seeds few, brown, oblong, 3–4 mm, smooth. Fl. Aug, fr. Sep–Oct.

• Forests, thickets on slopes, stony places, along canals, moist places; 1200–2100 m. Chongqing (Chengkou), W Hubei (Baokang).

178. *Impatiens compta* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 264. 1908.

顶喙凤仙花 *ding hui feng xian hua*

Plants annual, 50–100 cm tall or more, glabrous, with few supporting roots. Stem erect, robust, ca. 1 cm wide, lower part long naked, upper part branched. Leaves alternate. Lower leaves petiolate; petiole 2–4 cm, fibrous; leaf blade pale green abaxially, dark green adaxially, ovate or ovate-oblong, 3–10 × 2–4 cm, membranous, lateral veins 5–7 pairs, base rounded or subcordate, margin coarsely crenate, teeth retuse, apex obtuse or shortly acute. Upper leaves sessile or shortly petiolate; leaf blade narrowly oblong, base cordate. Inflorescences in upper leaf axils, 1- or 2(or 3)-flowered; peduncles 1–3 cm. Pedicels 8–10 mm, slender, bracteate at middle; bracts persistent, lanceolate, 3–4 mm. Flowers pale purple-blue, large, 3.5–4 cm. Lateral sepals 2, orbicular or ovate-orbicular, ca. 8 × 6–7 mm, inequilateral, reticulate, apex cuspidate. Lower sepal deeply saccate, 2.5–3.5 cm deep, abruptly narrowed into an incurved spur; spur purple-red spotted, ca. 1 cm; mouth vertical, ca. 1.5 cm wide, tip acute. Upper petal obovate or reniform, 2.5–3 × 1.1–1.2 cm, apex long rostellate, abaxial midvein fine; lateral united petals not clawed, elongate, 2.5–3 cm, 2-lobed; basal lobes orbicular, ca. 6 mm in diam.; distal lobes lanceolate-dolabriform, slightly incised at apex, curved setose; auricle inflexed. Filaments linear, ca. 3 mm; anthers ovoid, apex acute. Ovary erect, fusiform. Capsule linear, 3–4 cm. Seeds many, oblong, 3–4 mm. Fl. Aug–Sep.

• Forest understories, grasslands on slopes, moist places by streams, along canals; 1500–2200 m. Chongqing (Chengkou, Wuxi), W Hubei (Shennongjia).

179. *Impatiens poculifer* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 267. 1908.

罗平凤仙花 *luo ping feng xian hua*

Plants to 90 cm tall, glabrous. Stem erect, robust, 1–1.5 cm in diam. at base, nodes swollen, with few supporting roots, long naked in lower part, branched in upper part; branches spreading, slender. Leaves alternate, shortly petiolate. Lower leaves with petiole stout, 0.5–1.5(–3.5) cm; leaf blade ovate or obovate-oblong, 8–12(–15) × 3–5 cm, thinly membranous, lateral veins 6 or 7(or 8) pairs, midvein and lateral veins abaxially conspicuous, base cordate or rounded, margin coarsely crenate, teeth emarginate or rounded, apex obtuse. Upper leaves subsessile or very shortly petiolate; leaf blade yellow-green abaxially, dark green adaxially, ovate-oblong, ca. 5 × 2.5 cm. Inflorescences in upper leaf axils, 3- or 4-flowered; peduncles shorter

than leaves, 1.5–3 cm, slender. Pedicels 1–2 cm, bracteate below flower; bracts persistent, ovate-lanceolate, 3–4 mm. Flowers yellow or pink-white, ca. 2.5 cm deep. Lateral sepals 2, broadly ovate, 1–1.2 cm, membranous, 8- or 9-veined, midvein fine, apex acuminate, cuspidate. Lower sepal subglobose or cup-shaped, large, abruptly narrowed into an incurved spur; mouth vertical, ca. 2.5 cm wide, tip acuminate. Upper petal orbicular, ca. 1.3 cm in diam., abaxial midvein broadly cristate; lateral united petals not clawed, short, ca. 2.5 cm, 2-lobed; basal lobes orbicular; distal lobes dolabriform, longer, apex long narrowed; auricle rounded. Filaments linear; anthers obtuse. Ovary fusiform. Capsule linear, 3.5–5 cm. Seeds many, obovoid or oblong, ca. 2.5 mm, tuberculate. Fl. Aug–Sep.

• Mixed forests, grassy slopes; 3000–3600 m. NW Yunnan.

180. *Impatiens delavayi* Franchet, *Bull. Soc. Bot. France* 33: 445. 1886.

耳叶凤仙花 *er ye feng xian hua*

Plants annual, 30–40 cm tall. Stem erect, slender, branched or simple, glabrous. Leaves alternate. Lower and middle leaves petiolate; petiole 2–3 cm, slender; leaf blade broadly ovate or ovate-orbicular, 3–5 × 1–2 cm, thinly membranous, base abruptly attenuate into petiole, apex obtuse. Upper leaves sessile or subsessile, oblong, glabrous, setose between teeth, lateral veins 4–6 pairs, glabrous, base cordate, slightly amplexicaul, margin coarsely crenate. Inflorescences in upper leaf axils 1–5-flowered; peduncles 2–3 cm, slender. Pedicels slender, bracteate below flowers; bracts persistent, ovate. Flowers purplish or dirty yellow, large, 2–3 cm deep. Lateral sepals 2, obliquely ovate or ovate-orbicular, inequilateral, apex acute. Lower sepal saccate, abruptly narrowed into an incurved spur; spur short, shallowly 2-fid. Upper petal cucullate, orbicular, abaxial midvein thickened, slightly cristate middle; lateral united petals 2-lobed; basal lobes subtetragonous, small; distal lobes dolabriform, large, apex acute; auricle large. Anthers obtuse. Capsule linear, 3–4 cm. Seeds brown, elliptic-oblong, tuberculate. Fl. Jul–Sep.

• *Abies* or *Quercus* forests, by streams, along canals; 3400–4200 m. SW Sichuan, SE Xizang, Yunnan.

181. *Impatiens subcalcarata* (Handel-Mazzetti) Y. L. Chen, *Acta Phytotax. Sin.* 16(2): 51. 1978.

近无距凤仙花 *jin wu ju feng xian hua*

Impatiens delavayi Franchet var. *subcalcarata* Handel-Mazzetti, *Symb. Sin.* 7: 654. 1933.

Plants annual, 30–60 cm tall. Stem erect, branched in upper part; branchlets ascending, slender. Leaves subopposite with petiole 2.5–4.5 cm in lower part of stem, alternate and shortly petiolate or subsessile in upper part of stem; leaf blade pale green abaxially, green adaxially, ovate or ovate-oblong, 2.5–9 × 1.5–3 cm, membranous, sparsely puberulent or subglabrous, lateral veins 4–6 pairs, inconspicuous, base broadly cuneate or cordate in lower leaves, but cordate-amplexicaul in upper leaves, margin coarsely retuse, sometimes undulate, rarely nearly entire, apex obtuse or rounded. Inflorescences in upper leaf axils, 1- or 2-flowered; peduncles shorter than leaves, 3–4

cm. Pedicels 1.3–1.5 cm, bracteate above middle; bracts persistent, ovate-lanceolate, ca. 3 mm, leathery. Flowers purple-red, 2.5–3 cm deep. Lateral sepals 2, obliquely ovate, 10–12 × 8–9 mm, abaxial midvein not thickened, 5-veined. Lower sepal saccate, 2–2.5 cm deep, abruptly narrowed into a very short, erect or curved spur ca. 2 mm, or almost without spur; mouth oblique, 1.5–2 cm wide. Upper petal orbicular, ca. 1.5 cm in diam., apex rounded, abaxial midvein thickened; lateral united petals shortly clawed or ± clawed, 2.5–3 cm, 2-lobed; basal lobes ovate-orbicular, apex emarginate; distal lobes broadly dolabriform-falcate, apex acuminate; auricle inflexed, narrow. Filaments linear, 3–4 mm; anthers obtuse. Ovary fusiform, 4–5 mm, rostellate. Capsule linear, 3–3.5 cm. Fl. Jul–Aug, fr. Sep.

• Understories of alpine mixed forests, forest margins on slopes; 3500–3700 m. SW Sichuan, NW Yunnan.

182. *Impatiens notolopha* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 91. 1890.

西固凤仙花 xi gu feng xian hua

Plants annual, 40–60 cm tall, slender, glabrous. Stem erect, slender, long naked basally, laxly branched from middle part; branches spreading, opposite or subopposite. Leaves alternate. Lower leaves petiolate; petiole long, 2.5–4 cm; leaf blade broadly ovate or ovate-elliptic, rarely suborbicular, 3–6 × 1.5–3.5 cm, thinly membranous, lateral veins 4 or 5 (or 6) pairs, inconspicuous, base broadly cuneate, abruptly attenuate into petiole, margin coarsely crenate, teeth emarginate, apex obtuse or subrounded. Upper leaves sessile, ovate, gradually smaller, base rounded or cordate. Inflorescences in upper leaf axils, 3–5-flowered; peduncles 3–4 cm, very slender. Pedicels fibrous, 5–8(–10) mm, bracteate above middle; bracts persistent, linear, 3–5 mm, membranous. Flowers yellow, small, ca. 2 cm deep. Lateral sepals 2, green, ovate-oblong or orbicular, 3–4 mm, membranous, apex mucronulate. Lower sepal navicular, ca. 4 mm, gradually narrowed into an incurved spur; spur 1.5–2 cm, slender. Upper petal suborbicular, ca. 5 mm, apex rounded, abaxial midvein green, broadly carinate; lateral united petals not clawed, ca. 1.5 cm, 2-lobed; basal lobes suborbicular, small; distal lobes clawed, orbicular or broadly dolabriform, apex slightly acute; auricle curved, small. Filaments linear, short; anthers obtuse. Ovary fusiform. Capsule narrowly fusiform, 1.5–2.5 cm. Seeds many, brown, elliptic, ca. 2.5 mm, smooth. Fl. Jul–Aug, fr. Aug–Sep.

• Mixed forests, forest understories on slopes, shaded moist places; 2200–3600 m. Gansu, Henan, Shaanxi, NW Sichuan.

183. *Impatiens undulata* Y. L. Chen & Y. Q. Lu, Acta Bot. Yunnan. 12: 23. 1990.

波缘凤仙花 bo yuan feng xian hua

Plants annual, 40–100 cm tall, glabrous. Stem erect, many branched in upper part. Leaves alternate, petiolate in lower part of stem, sessile in upper part of stem; leaf blade pale green abaxially, gray-green adaxially, ovate or ovate-orbicular, 2–4 × 1.5–5 cm, lateral veins 6 or 7 pairs, base rounded, truncate, or cordate, margin undulate or obtusely crenate, apex obtuse. Inflorescences axillary, 1–3-flowered; peduncles 1.4–1.6 cm. Pedicels 6–7 mm, slender, bracteate at middle; bracts sub-

late. Flowers yellow, small, to 2 cm deep, ca. 1 cm wide. Lateral sepals 2, yellow, turning brown when dry, ovate-orbicular, small, 2–3 × ca. 2 mm. Lower sepal salver-shaped, ca. 2 cm, gradually narrowed into spur; spur ca. 2 cm, longer than limb, slender, apex incurved; mouth subvertical, obtuse. Upper petal suborbicular, 3–5 mm, base truncate, apex rounded, abaxial midvein carinate, green; lateral united petals ± clawed, ca. 1.2 cm, 2-lobed; basal lobes small; distal lobes dolabriform, large, apically retuse; auricle inflexed, narrow. Filaments short, 1–1.5 mm; anthers acute. Capsule nearly black, fusiform, 1.5–1.8 cm. Fl. and fr. Aug–Sep.

• Forest margins, grasslands between forests; 1800–2000 m. Sichuan (Dujiang Yan, Emei Shan).

184. *Impatiens muliensis* Y. L. Chen, Acta Phytotax. Sin. 28: 483. 1990.

木里凤仙花 mu li feng xian hua

Plants annual, 50–60 cm tall, glabrous. Stem succulent, simple, rarely branched in upper part, lower nodes swollen, with many fibrous roots. Leaves alternate, petiolate in lower and middle parts of stem; leaf blade pale green abaxially, dark green adaxially, ovate or ovate-lanceolate, 3–7 × 1.5–3 cm, membranous, glabrous, lateral veins 3–5 pairs, base cuneate, margin coarsely crenate, teeth mucronulate, apex shortly caudate. Inflorescences solitary in upper leaf axils, usually (1 or) 2-flowered; peduncles often shorter than leaves. Pedicels 5–10 mm, slender, slightly elongate after anthesis, bracteate below flower; bracts persistent, green, ovate, 1.5–2 mm, 3-veined, apex acute and curved. Flowers yellowish, large, 3–3.5 cm. Lateral sepals 2, ovate, thin and hyaline margined, ca. 6 × 3 mm, apex rostellate, slightly recurved, abaxial midvein thickened, narrowly carinate. Lower sepal funnelform, 3.5–4 cm deep, gradually narrowed into a 2-fid, spotted spur; mouth subvertical, ca. 1.5 cm wide, tip acute. Upper petal saccate, purple-red spotted, elliptic, 1.2–1.3 cm × ca. 6 mm, apex mucronulate, abaxial midvein broadly cristate; lateral united petals clawed, ca. 3 × 1.4 cm, 2-lobed; basal lobes falcate, curved upward and spreading, purple-red spotted; distal lobes suborbicular-obovate, apex rounded; auricle inflexed, narrow. Filaments linear, ca. 5 mm; anthers ovoid, apex obtuse. Ovary erect, fusiform, ca. 5 mm. Capsule linear-cylindric, ca. 3 cm. Seeds many, yellow-brown, oblong, ca. 3 mm, glabrous, 1-costate. Fl. Sep.

• Grasslands by streams; ca. 3500 m. Sichuan (Muli).

185. *Impatiens apsothis* J. D. Hooker, Hooker's Icon. Pl. 30: t. 2972. 1911.

川西凤仙花 chuan xi feng xian hua

Plants annual, 10–30 cm tall, glabrous. Stem slender, simple or shortly branched. Leaves alternate; petiole 1–5 cm, slender; leaf blade ovate, 3–5 × 1.5–2.5 cm, thinly membranous, without basal glands, lateral veins 4 or 5 pairs, base cuneate or truncate, margin coarsely crenate, teeth obtuse or emarginate, mucronulate, apex acuminate or slightly acute. Inflorescences axillary, 1- or 2-flowered; peduncles shorter or longer than petioles. Pedicels ca. 1 cm, bracteate at middle; bracts ovate-lanceolate. Flowers white, small, ca. 1 cm in diam. Lateral sepals 2, green, linear, apex acute, abaxial midvein carinate, apex

acute. Lower sepal navicular, gradually narrowed into an incurved spur ca. as long as limb. Upper petal broadly elliptic, 4–5 mm, cucullate, apex acute, abaxial midvein thickened, broadly carinate; lateral united petals clawed, 2-lobed; basal lobes ovate, apex acute; distal lobes dolabriform, ca. 3 × as long as basal lobes, apex obtuse; auricle inflexed, reniform. Anthers small, obtuse. Capsule linear, 3–3.5 cm. Seeds 3–5, elliptic, smooth. Fl. Jun–Sep.

• Forest margins, moist places in valleys; 2200–3000 m. Qinghai (Baima), Sichuan, Xizang.

186. *Impatiens lasiophyton* J. D. Hooker, Hooker's Icon. Pl. 29: t. 2871. 1908.

毛凤仙花 mao feng xian hua

Plants annual, 30–60 cm tall, spreading yellow-brown tomentose. Stem erect, robust, branched. Leaves alternate; petiole 1–3 cm; leaf blade elliptic, ovate, or ovate-lanceolate, 3–8 × 1.5–4 cm, both surfaces hirsute, lateral veins 7 or 8 pairs, base acute, margin coarsely crenate or crenate-serrate, apex acute or acuminate. Inflorescences axillary, 2-flowered; peduncles 2–3 cm. Pedicels slender, bracteate below flower; bracts lanceolate. Flowers yellow or white. Lateral sepals 2 (or 4), subovate, 5–8 mm, hirsute, apex cuspidate. Lower sepal broadly funnellform, gradually narrowed into an incurved spur. Upper petal orbicular, base cordate, apex obtuse, abaxial midvein thickened, cristate apically; lateral united petals not clawed, 2-lobed; basal lobes small or rudimentary; distal lobes broadly dolabriform or sublunar; auricle conspicuous. Anthers obtuse. Capsule linear-fusiform. Fl. Jun–Jul.

• Dense forests, along canals, shaded moist places; 1700–2700 m. Guangxi, Guizhou, Yunnan.

187. *Impatiens tomentella* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 264. 1908.

微绒毛凤仙花 wei rong mao feng xian hua

Plants annual, 20–40 cm tall. Stem erect or ascending, succulent, often naked in lower part, with many fibrous roots, branched or simple; stem, branches, and young leaves densely yellow-brown tomentulose, ± glabrous. Leaves alternate, usually crowded in upper part of stem, sessile or shortly petiolate; petiole 1–1.5 cm, stout, densely brown tomentulose; leaf blade gray-green abaxially, dark green adaxially, ovate or oblong-lanceolate, 6–12 × 2.5–3.5 cm, often with 1 pair of glands and a few pairs of stipitate glands at base, abaxially brown tomentulose on veins, adaxially adpressed yellow-brown pilose, lateral veins 6–9 pairs, abaxially stout and conspicuous, base cuneate, margin crenate-serrate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, 2-flowered; peduncles shorter than leaves, 2.5–3 cm, densely tomentulose. Pedicels 1–1.5 cm, slender, bracteate below middle; bracts persistent, lanceolate, 3–5 mm. Flowers orange-yellow, 1.5–2 cm deep. Lateral sepals 2, ovate, 3–4 mm, denticulate, apex acuminate. Lower sepal funnellform, sparsely pubescent, gradually narrowed into an incurved spur; spur ca. 1.5 cm, slender; mouth oblique, ca. 8 mm wide, tip obtuse. Upper petal subreniform, ca. 8 mm wide, abaxial midvein thickened, cristate; lateral united petals not clawed, short, 2-lobed; basal lobes broadly cuneate; distal lobes

lunar, apex rounded; auricle conspicuous. Filaments linear; anthers very small, obtuse. Ovary fusiform, 2–3 mm. Capsule linear, ca. 2 cm. Seeds few, brown, oblong, ca. 4 mm. Fl. Jul–Aug.

• Evergreen forests, shaded moist places; 1400–1800 m. N Yunnan (Gongshan, Qiaojia).

188. *Impatiens leptocaulon* J. D. Hooker, Hooker's Icon. Pl. 29: t. 2872. 1908.

细柄凤仙花 xi bing feng xian hua

Plants annual, 30–50 cm tall. Stem erect, slender, simple or branched, nodes and upper part brown pubescent. Leaves alternate; leaf blade ovate or ovate-lanceolate, 5–10 × 2–3 cm, with few basal glands, base narrowly cuneate, margin serrulate, apex acute or acuminate. Inflorescences 1- or 2-flowered; peduncles slender. Pedicels short, bracteate above middle; bracts lanceolate. Flowers purple-red. Lateral sepals 2, subovate, long cuspidate, inequilateral, hyaline margined, denticulate on one side. Lower sepal navicular, narrowed into an incurved, long spur. Upper petal orbicular, apex rostellate, abaxial midvein carinate; lateral united petals not clawed, 2-lobed; basal lobes orbicular, small; distal lobes obovate-oblong; auricle obtuse. Anthers obtuse. Capsule linear. Fl. May–Aug, fr. Sep–Oct.

• Forest understories, grasslands on slopes, along canals, shaded moist places; 1200–2000 m. Guizhou, Henan, W Hubei, Hunan, Sichuan, Yunnan.

189. *Impatiens blepharosepala* E. Pritzl, Bot. Jahrb. Syst. 29: 455. 1900.

睫毛萼凤仙花 jie mao e feng xian hua

Impatiens silvestrii Pampanini.

Plants annual, 30–60 cm tall. Stem erect, simple or branched from base. Leaves alternate, often crowded in upper part of stem; leaf blade oblong or oblong-lanceolate, 7–12 × 3–4 cm, with 2 globose basal glands, lateral veins 7–9 pairs, base cuneate, margin crenate, teeth mucronulate, apex acuminate or caudate-acuminate. Inflorescences axillary, 1- or 2-flowered. Pedicels bracteate at middle; bract 1, caducous, linear, 3–4 mm. Flowers purple. Lateral sepals 2, ovate, 3–4 mm wide, margin ciliate, sometimes remotely denticulate, carinate, apex cuspidate. Lower sepal broadly funnellform, not saccate, to 3.5 cm deep, gradually narrowed into an incurved slender spur. Upper petal subreniform, abaxial midvein narrowly thickened; lateral united petals 2-lobed; basal lobes oblong; distal lobes dolabriform, large. Anthers broadly ovoid, apically acute. Capsule linear. Fl. and fr. May–Nov.

• Forest margins, shaded moist places on slopes, along water-courses or canals; 500–1600 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, ?Zhejiang.

Two of us (Ohba and Akiyama) prefer to treat *Impatiens silvestrii* as a distinct species.

190. *Impatiens macrovexilla* Y. L. Chen, Acta Phytotax. Sin. 38: 560. 2000.

大旗瓣凤仙花 da qi ban feng xian hua

Plants annual, 20–30 cm tall, glabrous, with few supporting roots. Stem erect, succulent, simple or branched at middle part, long naked basally, nodes swollen, sometimes with adventitious roots. Leaves alternate; petiole 1–2.5 cm; leaf blade pale green abaxially, dark green adaxially, oblong or oblong-lanceolate, 5–9(–12) × 2.5–4 cm, thinly membranous, lateral veins 9–12 pairs, often with 2 globose basal glands, base cuneate, attenuate into petiole, margin crenate, emarginate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, (1 or) 2-flowered; peduncles 4–7 cm. Pedicels 1.5–3 cm, slender, bracteate above middle; bracts persistent, lanceolate, 5–7 mm, apex acuminate. Flowers purple, 3.5–4 cm deep. Lateral sepals 2, green, broadly ovate, 5–6 × 3–4 mm, margin denticulate, apex long cuspidate. Lower sepal narrowly funnellform, 4–4.5 cm, gradually narrowed into an incurved spur; spur 2–2.5 cm, slender; mouth oblique, ca. 1.5 cm, tip rostellate. Upper petal obovate or reniform, large, ca. 1.6 × 3.5 cm, apex retuse, mucronulate, abaxial midvein narrowly carinate; lateral united petals not clawed, ca. 2.6 cm, 2-lobed; basal lobes oblong, apex rounded; distal lobes dolabrifrom, 2-lobed apically; auricle inconspicuous. Filaments linear, ca. 5 mm; anthers obtuse. Ovary erect, fusiform, 5–6 mm. Capsule oblong, 1.8–2 cm. Seeds many, brown, globose, ca. 3 mm, smooth. Fl. Sep–Oct.

• Forests, grasslands at roadsides, shaded moist places; 1000–1600 m. Guangxi.

Impatiens macrovexilla var. *yaoshanensis* S. X. Yu et al. (Acta Phytotax. Sin. 45: 710. 2007), also from Guangxi, was published as this volume was going to press and therefore could not be treated here.

191. *Impatiens torulosa* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 265. 1908.

念珠凤仙花 nian zhu feng xian hua

Plants annual, 20–60 cm tall, subglabrous, with few supporting roots. Stem erect or laxly branched, soft, slender or stout basally; branches slightly curved. Leaves alternate, petiolate, subsessile in upper ones; petiole 1–4 cm, slender; leaf blade ovate, oblong, or subelliptic, or upper ones ovate-lanceolate or oblong, 4–8.5 cm, thinly membranous, lateral veins 4–6 pairs, fine, base broadly cuneate or subrounded, upper ones rounded or cordate, margin coarsely crenate, teeth mucronulate, apex obtusely caudate. Inflorescences in leaf axils, 1–3-flowered; peduncles fibrous, 1–3 cm, sparsely puberulent or glabrous. Pedicels 1–1.5 cm, elongate at fruiting, bracteate at middle; bracts persistent, linear-setose, ca. 2 mm. Flowers pink, small, ca. 1.5 cm deep. Lateral sepals 2, ovate, 3–4 mm, abaxial midvein obtusely cristate, base cordate, margin entire or denticulate on one side, apex acute or acuminate. Lower sepal navicular, vertical, with a curved spur; spur subequal to limb, 5–6 mm, apex with a groove or 2-fid. Upper petal orbicular, 6–8 mm in diam., cucullate, abaxial midvein narrowly cristate at middle; lateral united petals not clawed, 1.2–1.4 cm, 2-lobed; basal lobes small, sometimes rudimentary; distal lobes reflexed, clawed, lunar, abruptly narrowed basally, apex obtuse; auricle conspicuous, dentate or rounded. Filaments slender; anthers small, obtuse. Ovary erect, fusiform. Capsule linear, 2.5–3.5 cm, torulose. Seeds many, brown, elliptic, 3.5–4 mm, shiny. Fl. Aug.

• Forest understories; ca. 3200 m. W Sichuan.

192. *Impatiens minimisepala* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 266. 1908.

微萼凤仙花 wei e feng xian hua

Plants annual, 20–40 cm tall, glabrous. Stem erect, slender, simple, long naked basally, internodes 3–7 cm. Leaves alternate; petiole 0.3–1 cm; leaf blade gray-green abaxially, dark green adaxially, ovate-lanceolate, 3–5 × 2–2.5 cm, with 1 (or 2) pair(s) of basal glands, lateral veins 4 or 5 pairs, curved, midvein and lateral veins conspicuous abaxially, base acute, attenuate into petiole, margin serrulate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, 2-flowered; peduncles erect, 1–1.5 cm, fibrous. Pedicels ca. 1 cm, elongate at fruiting, bracteate at middle; bracts persistent, very small. Flowers yellow, very small, ca. 1 cm deep. Lateral sepals 2, ovate, minute, shorter than 1 mm, thick, abaxial midvein thickly cristate, margin sparsely denticulate on one side, apex cuspidate. Lower sepal funnellform or cup-shaped, to 1 cm, gradually narrowed into an incurved spur ca. 2.5 cm; mouth vertical, ca. 5 mm wide, tip obtuse. Upper petal obovate, ca. 1 cm wide, abaxial midvein cristate; lateral united petals not clawed, short, 1.3–1.5 cm, 2-lobed; basal lobes orbicular, small; distal lobes reflexed, obovate-orbicular or lunar; auricle inflexed. Filaments very short; anthers obtuse. Ovary fusiform. Capsule not seen. Fl. Oct.

• By streams on slopes, shaded moist places; ca. 1900 m. Yunnan (Yanjin).

193. *Impatiens sigmoidea* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 267. 1908.

斯格玛凤仙花 si ge ma feng xian hua

Plants annual, 50–60 cm tall, glabrous. Stem erect, long naked basally, branched. Leaves alternate; petiole 5–10 mm; leaf blade ovate or ovate-lanceolate, 3–6 × 2–3 cm, base without bristles or 2-setose, attenuate into petiole, midvein abaxially prominent, lateral veins 6 or 7 pairs, margin serrulate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, over subtending leaves, 2-flowered. Pedicels 1–2 cm, bracteate above middle; bracts persistent, ovate-lanceolate, 8–10 mm, apex acuminate. Flowers white or white-green, 1–1.5 cm wide. Lateral sepals 2, ovate, 6–7 mm, S-curved, quite inequilateral, margin entire or inconspicuously denticulate on one side, apex acuminate. Lower sepal funnellform, abruptly narrowed into an incurved spur 2–2.8 cm; mouth vertical, ca. 1 cm, tip cuspidate. Upper petal cucullate, orbicular, abaxial midvein broadly cristate; lateral united petals not clawed, 1–1.3 cm, 2-lobed; basal lobes cuneate or obovate, small; distal lobes clawed, dolabrifrom, ca. 2 × as long as basal lobes, apex abruptly narrowed and obtuse; auricle conspicuous, obtuse. Filaments short, broad; anthers obtuse. Ovary erect, fusiform. Capsule clavate, ca. 5 cm. Seeds few, 3–5 mm, smooth. Fl. Aug.

• Guizhou (Gaopo Shan, Pingba).

194. *Impatiens nobilis* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 268. 1908.

高贵凤仙花 gao gui feng xian hua

Plants glabrous, with large leaves. Stem erect, robust, branched. Leaves alternate, petiolate, upper ones sessile; petiole

4–5 cm, stout; leaf blade gray-green abaxially, dark green adaxially, ovate or elliptic-lanceolate, 10–15 × 4–5.5 cm, leathery, lateral veins 7 or 8 pairs, midvein and lateral veins conspicuous abaxially, base cuneate in lower and middle leaves, rounded in upper ones, margin crenate or serrate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, 2- or 3-flowered; peduncles fibrous, elongate, 5–6 cm, rigid. Pedicels 1–1.5 cm, slender, bracteate at base; bracts persistent, ovate-lanceolate, 1–1.5 mm. Flowers white, purple-red striate, ca. 2.5 cm deep. Lateral sepals 2, obliquely ovate-orbicular, 0.8–1 cm in diam., inequilateral, lateral veins 5, connected at apex, apex mucronate. Lower sepal funnelform, slightly turgid, ca. 2.5 cm, gradually narrowed into an incurved spur ca. 1.5 cm; mouth ± oblique, ca. 1.2 cm wide, tip obtuse. Upper petal broadly obovate-orbicular, ca. 1.8 cm wide, apex obtuse, abaxial midvein cornute; lateral united petals not clawed, ca. 2.3 cm, 2-lobed; basal lobes orbicular, large; distal lobes oblong, apex obtuse; auricle inflexed, narrow. Filaments linear, short; anthers obtuse. Ovary fusiform. Capsule erect, linear, subtorulose, 2–2.5 cm. Seeds many, black, obovoid, ca. 3 mm, shiny. Fl. Aug.

- Shaded moist places on slopes; ca. 1900 m. Yunnan (Yanjin).

195. *Impatiens divaricata* Franchet, Bull. Soc. Bot. France 33: 447. 1886.

叉开凤仙花 cha kai feng xian hua

Plants 50–70 cm tall, rigid, glabrous, with few, thick roots. Stem erect, long naked in lower part, ± simple or rarely branched. Leaves alternate, shortly petiolate; leaf blade purple-tinged abaxially, green adaxially, oblong-lanceolate or oblanceolate, 12–15 × 2–3 cm, papery, stipitate glandular-ciliate near base, lateral veins 7 pairs, base slightly cordate or cuneate, margin sharply serrate, teeth mucronulate, apex caudate-acuminate. Inflorescences in upper leaf axils, pendulous, or ± curved, elongate, 4–6 cm, 2–4-flowered. Pedicels spreading or pendulous, bracteate below flowers; bracts persistent, lanceolate. Flowers yellow, large, ca. 4 cm deep. Lateral sepals 2, ovate-lanceolate, 3–4 mm. Lower sepal broadly funnelform, incurved, constricted into a slender spur ca. 1 cm. Upper petal orbicular, small, apex cuspidate; lateral united petals not clawed, ca. 1.5 cm, 2-lobed; basal lobes very small; distal lobes oblong, apex rounded. Filaments linear; anthers obtuse. Ovary fusiform, ca. 3 mm. Capsule linear, 4–6 cm. Seeds many, oblong, ca. 2.5 mm, glabrous. Fl. Aug, fr. Oct.

- Shaded moist places along canals; 2100–3000 m. NW Yunnan (Binchuan, Xianggelila).

196. *Impatiens chekiangensis* Y. L. Chen, Bull. Bot. Res., Harbin 8(2): 4. 1988.

浙江凤仙花 zhe jiang feng xian hua

Plants annual, 20–50 cm tall, glabrous. Stem erect or slightly curved in upper part, simple or laxly branched, nodes swollen in lower part, with few fibrous roots. Leaves alternate, petiolate, lower leaves withering at anthesis, upper leaves crowded, smaller, shortly petiolate; petiole 1.5–3 cm; blades of middle and upper leaves pale green abaxially, dark green adaxially, ovate-oblong, 3–7 × 2–3.5 cm, membranous, with 2 or 3 pairs of stipitate glands, glabrous, lateral veins 5–7 pairs, curved, base cuneate, margin crenate, teeth mucronulate, apex

acuminate. Inflorescences axillary, subdivaricate, 2(or 3)-flowered; peduncles shorter or longer than petioles, 2–3 cm. Pedicels 1.5–2 cm, slightly elongate at fruiting, bracteate at base; bracts persistent, linear-lanceolate or linear, 3–6 mm, apex shortly acute. Flowers pink-purple, 2–2.5 cm deep. Lateral sepals 2, ovate-orbicular, ca. 6 × 4–5 mm, 5–9-veined, margin entire, apex mucronulate. Lower sepal narrowly funnelform, 2–2.5 cm deep, gradually narrowed into an incurved spur 2–2.5 cm; mouth oblique, ca. 1.5 cm wide, tip mucronulate. Upper petal suborbicular, 1.2–1.3 cm, slightly narrowed apically, apex retuse, curvedly rostellate, abaxial midvein thickened, conspicuously carinate; lateral united petals ± clawed, 1.8–2 cm, 2-lobed; basal lobes ovate-oblong; distal lobes dolabriform, apex obtuse or emarginate; auricle absent. Filaments linear, 3–4 mm; anthers ovoid, obtuse at apex. Ovary erect, linear, 2–3 mm. Capsule fusiform, ca. 1.5 cm. Seeds 7 or 8, yellow-brown, ovoid-oblong, ca. 2 mm, tuberculate. Fl. Jul–Aug.

- Forest understories at riversides in valleys, shaded moist places; 400–1000 m. Zhejiang.

197. *Impatiens taishunensis* Y. L. Chen & Y. L. Xu, Bull. Bot. Res., Harbin 13: 11. 1993.

泰顺凤仙花 tai shun feng xian hua

Plants annual, 10–20 cm tall, glabrous. Stem erect, basally pink, slender, simple, with few fibrous roots. Leaves opposite in lower part of stem, alternate in upper part of stem; petiole 0.5–1 cm; leaf blade ovate-lanceolate, 1–4 × 0.7–2 cm, membranous, without glands, lateral veins 3–5 pairs, base cuneate, margin crenate serrate, apex acuminate. Inflorescences solitary, in upper leaf axils, ca. 1.5 cm, 1-flowered. Pedicels bracteate above middle; bracts persistent, elliptic, 2–3.5 mm. Flowers pink, ca. 2.5 cm deep. Lateral sepals 2, ovate, ca. 3.5 × 2.5 mm, 3-veined, margin entire, apex conspicuously mucronulate. Lower sepal narrowly funnelform, ca. 1.8 cm deep, gradually narrowed into an incurved spur ca. 1.2 cm; mouth vertical, 5–6 mm wide, tip mucronulate. Upper petal suborbicular, ca. 4.5 × 5 mm, apex obtuse, abaxial midvein narrowly carinate; lateral united petals ca. 8 mm, 2-lobed; basal lobes ovate-oblong; distal lobes dolabriform, apex rounded. Filaments linear, ca. 2 mm; anthers ovoid, apex obtuse. Ovary fusiform, ca. 2 mm. Capsule (immature) fusiform. Fl. Apr.

- Shaded moist places in valleys; ca. 100 m. Zhejiang (Taishun).

198. *Impatiens exiguiflora* J. D. Hooker, Hooker's Icon. Pl. 30: t. 2975. 1911.

鄂西凤仙花 e xi feng xian hua

Plants annual, 30–50 cm tall. Stem erect, or base ascending, green, often black spotted in lower part, succulent, simple or sometimes branched, nodes swollen in lower part, with many fibrous roots. Leaves alternate or crowded in upper part of stem; petiole 1.5–2.5 cm; leaf blade pale green abaxially, green adaxially, ovate or ovate-lanceolate, leathery, abaxially glabrous, adaxially adpressed-puberulent, lateral veins 7–9 pairs, curved, prominent abaxially, base cuneate, attenuate into petiole, without glands, margin coarsely crenate, teeth mucronulate, apex acuminate. Inflorescences in middle and upper leaf axils, divaricately 2-flowered; peduncles longer than petioles, 3–5

cm. Pedicels 1–2 cm, ± puberulent, bracteate above middle; bracts persistent, setose, 3–5 mm, membranous. Flowers pink, 0.8–1.2 cm. Lateral sepals 2, subovate, 3–5 × 2–3 mm, subfalcate, abaxial midvein thickened, apex long mucronulate. Lower sepal funnellform, limb 4–6 mm deep, gradually narrowed into an erect spur; spur ca. 1.8 cm, slender; mouth vertical, tip acute. Upper petal cucullate, orbicular, ca. 5 mm, abaxial midvein thickened, apically cristate; lateral united petals not clawed, 0.8–1 cm, 2-lobed; basal lobes small; distal lobes clawed, lunar, apex obtuse; auricle narrow. Filaments linear; anthers ovoid, apex obtuse. Ovary ovoid-rounded. Capsule fusiform, 1.5–2.5 cm. Seeds few, brown, densely tuberculate. Fl. Jun–Aug, fr. Sep.

• Forest understories, shaded moist places in valleys, grasslands, along canals, roadsides on slopes; 800–1600 m. W Hubei.

199. *Impatiens fenghuaiana* Y. L. Chen, Acta Phytotax. Sin. 27: 395. 1989.

封怀凤仙花 feng huai feng xian hua

Plants annual, 30–50 cm tall. Stem erect or rarely basally ascending, green, often black spotted in lower part, succulent, simple or sometimes branched, basal nodes swollen, with many fibrous roots. Leaves alternate, or crowded in upper part of stem; petiole 1.5–2.5 cm; leaf blade pale green abaxially, dark green adaxially, ovate or ovate-lanceolate, membranous, without basal glands, both surfaces glabrous, lateral veins 7–9 pairs, curved, base cuneate, attenuate into petiole, margin coarsely crenate, teeth mucronulate, apex acuminate. Inflorescences in upper leaf axils, subracemose, (1 or)2- or 3(or 4)-flowered; peduncles conspicuously shorter than leaves, slender. Pedicels 0.5–1.2 cm, slender, bracteate at base; bracts caducous, pink, broadly ovate-cordate, ca. 8 × 7 mm, thinly membranous, apex mucronulate. Flowers pink, ca. 3.5 cm in diam. Lateral sepals 2, oblong-ovate, 8–9 × ca. 7 mm, apex inconspicuously mucronulate. Lower sepal narrowly funnellform, gradually narrowed into an incurved spur ca. 2.5 cm; mouth oblique, tip mucronulate. Upper petal suborbicular, ca. 1.2 × 1.4 cm, base slightly cordate, apex retuse, abaxial midvein narrowly carinate; lateral united petals ± clawed, ca. 1.7 cm, 2-lobed; basal lobes oblong-ovate, small, ca. 4 mm; distal lobes broadly dolabriform, 1.7–1.8 cm wide, apex obtuse; auricle inflexed, lunar. Filaments linear; anthers ovoid, small, apex obtuse. Filaments linear; anthers ovoid, small, apex obtuse. Ovary erect, fusiform, 2–9 mm. Capsule linear, ca. 2 cm. Fl. and fr. Jun–Aug.

• Forest margins, grasslands, moist places; 500–1000 m. Jiangxi (Lushan).

200. *Impatiens wuyuanensis* Y. L. Chen, Acta Phytotax. Sin. 27: 397. 1989.

婺源凤仙花 wu yuan feng xian hua

Plants annual, 30–50 cm tall, glabrous. Stem erect or basally ascending, green, striate, succulent, branched, basal nodes with many fibrous roots. Leaves alternate; petiole 2.5–4 cm, with 1 or 2 pairs of stipitate glands apically; leaf blade pale purple abaxially, green adaxially, elliptic-ovate, 5–12 × 2.5–4 cm, membranous, lateral veins 5 or 6 pairs, curved, base cuneate, gradually attenuate into petiole, margin coarsely crenate-

serrate, teeth mucronulate, apex shortly caudate or acuminate. Inflorescences in upper leaf axils, subracemose, 2–4-flowered; peduncles shorter than leaves, slender. Pedicels 1–1.5 cm, slender, elongate at fruiting, bracteate at base; bracts caducous, purple, elliptic-ovate, 5–7 × 3–4 mm, thinly membranous, abaxially inconspicuously carinate, base cuneate, apex conspicuously mucronulate. Flowers purple, 2.5–3 cm in diam. Lateral sepals 2, oblong-ovate, 5–6(–7) × 4–5 mm, 5- or 6-veined, apex conspicuously mucronulate. Lower sepal narrowly funnellform, gradually narrowed into an incurved or slightly curved spur 2–2.5 cm; mouth oblique, 8–10 mm, tip conspicuously mucronulate. Upper petal suborbicular, ca. 0.8 × 1–1.2 cm, base subcordate or rounded, apex retuse, curved rostellate, abaxial midvein narrowly carinate; lateral united petals not clawed, ca. 1.5 cm, 2-lobed; basal lobes oblong-ovate, small, apex acute; distal lobes broadly dolabriform, ca. 1.5 cm wide, apex emarginate; auricle inflexed, subreniform. Filaments linear; anthers small, obtuse. Ovary erect, fusiform, ca. 2 mm. Capsule subclavate-linear, 1.5–1.8 cm. Seeds few, brown, oblong, rugose. Fl. and fr. Jun.

• Forest understories, along canals; ca. 500 m. N Jiangxi (Jing'an, Wuyuan).

201. *Impatiens platysepala* Y. L. Chen, Bull. Bot. Res., Harbin 8(2): 6. 1988.

阔萼凤仙花 kuo e feng xian hua

Impatiens platysepala var. *kuocangshanica* X. F. Jin & F. G. Zhang.

Plants annual, 30–50 cm tall, striate, glabrous. Stem erect or base prostrate, laxly branched, robust, naked and nodes swollen in lower part. Leaves alternate; petiole 3–6 cm; leaf blade pale green abaxially, dark green adaxially, ovate-lanceolate, 8–15(–20) × 2.5–5 cm, submembranous, with stipitate setose glands above middle, glabrous, lateral veins 9–11 pairs, curved, base cuneate, margin crenate-serrate or crenate, teeth incurved-mucronulate, apex shortly caudate or acuminate. Inflorescences axillary, subumbellate, 2- or 3-flowered; peduncles shorter than leaves, stout. Pedicels 1.5–2.5 cm, slightly elongate at anthesis, bracteate at base; bracts pink, ovate-lanceolate, 10–12 × 4–6 mm, thinly membranous, conspicuously cuspidate. Flowers pink, 3.5–4 cm deep. Lateral sepals 2, broadly ovate or suborbicular, large, 1–1.5 × 1–1.4 cm, 5-veined, margin entire, apex shortly cuspidate, abaxial midvein narrowly carinate. Lower sepal broadly funnellform, gradually narrowed into a curved or involute spur 3–4 cm; mouth vertical, ca. 2 cm wide, tip acuminate. Upper petal suborbicular, 1.6–1.8 cm in diam., thinly membranous, apex retuse, rostellate, abaxial midvein thickened, cristate; lateral united petals clawed, 2–2.5 cm, 2-lobed; basal lobes oblong-ovate, small, 7–8 mm, apex rounded; distal lobes broadly dolabriform, 1.2–1.3 × 1–1.2 cm, apex obtuse; auricle inflexed, subreniform. Filaments linear, ca. 5 mm; anthers ovoid, apex obtuse. Ovary erect or slightly curved, fusiform, ca. 5 mm. Capsule linear-cylindric, 2.5–3 cm. Seeds few, brown, subglobose, compressed, ca. 3 mm in diam., rugose. Fl. Aug–Oct.

• Forest understories, forest margins, along canals; ca. 1000 m. Jiangxi, Zhejiang.

202. *Impatiens chloroxantha* Y. L. Chen, Bull. Bot. Res., Harbin 8(2): 8. 1988.

淡黄凤仙花 dan huang feng xian hua

Plants annual, 30–40 cm tall, glabrous. Stem erect, simple or shortly branched in upper part, long naked, often swollen in nodes in lower part, with few fibrous roots. Leaves alternate, petiolate; leaf blade pale green abaxially, dark green adaxially, ovate-oblong or elliptic, 5–12 × 3–4 cm, membranous, often with 3 or 4 pairs of stipitate basal glands, both surfaces glabrous, lateral veins 7–9 pairs, curved, midvein ± conspicuous abaxially, base cuneate, margin crenate-serrate, apex acuminate. Inflorescences in upper leaf axils, subumbellate, 3-flowered, sometimes 2-flowered; peduncles conspicuously shorter than petioles, 5–10 mm. Pedicels slightly curved, 7–10 mm, slender, slightly swollen above, bracteate at base; bracts persistent, yellow-green, lanceolate, 6–7 × 2–3 mm, membranous, apex falcate-acuminate. Flowers yellow-green, 1.5–2 cm in diam. (not open). Lateral sepals 2, suborbicular, large, ca. 1.8 × 1.2 cm, thinly membranous, apex emarginate, acute, abaxial midvein thickened, narrowly carinate. Lower sepal deep yellow, navicular, ca. 1 cm deep, abruptly narrowed into an incurved spur ca. 1.5 cm; mouth vertical, ca. 1 cm wide, tip acute. Upper petal broadly elliptic, 1.2–1.3 × 1–1.2 cm, abaxial midvein conspicuously thickened, green cristate; lateral united petals not clawed, 8–9 mm, 2-lobed; basal lobes ovate-oblong, small, obtuse; distal lobes orbicular-dolabriform; auricle inflexed, ovate. Filaments linear, ca. 3 mm; anthers ovoid, apex obtuse. Ovary fusiform. Capsule not seen. Fl. May.

• Forests, shaded moist places along canals; 500–700 m. Zhejiang (Suichang).

203. *Impatiens tortispala* J. D. Hooker, Bull. Misc. Inform. Kew 1910: 270. 1910.

扭萼凤仙花 niu e feng xian hua

Plants annual, 40–50 cm tall, with few supporting roots, glabrous. Stem erect; branchlets spreading, slender. Leaves alternate; petiole 5–12 mm, without glands; leaf blade pale green abaxially, dark green adaxially, oblong or ovate-oblong, 10–15(–20) × 3–6 cm, submembranous, not setose between teeth, lateral veins 6 or 7 pairs, curved, prominent abaxially, margin crenate, teeth mucronulate, apex acuminate or caudate-acuminate. Inflorescences in upper leaf axils or terminal of branchlets, racemose, 6–8-flowered; peduncles suberect, shorter than leaves, 6–7 cm. Pedicels spreading, 1–1.5 cm, elongate at fruiting, bracteate at base; bracts persistent, subulate, 2–3 mm, apex acute. Flowers yellow, ca. 4 cm deep. Lateral sepals 2, reniform-orbicular, ca. 5 × 3–4 mm, tortuous, membranous, apex cuspidate. Lower sepal saccate, to 2 cm deep, abruptly narrowed into an incurved spur; spur ca. 1.5 cm, stout; mouth oblique, 1–1.5 cm wide, tip acute. Upper petal reniform, ca. 1.5 cm, apex rostellate, abaxial midvein thickened, carinate; lateral united petals broadly clawed, 2–2.5 cm, 2-lobed; basal lobes orbicular, small; distal lobes dolabriform, longer, apex rounded; auricle inflexed, purple spotted. Filaments short, broad; anthers ovoid, apex acute. Ovary erect, fusiform. Capsule linear, 4–5 cm. Seeds many, brown, oblong-obovoid, ca. 4 mm. Fl. Aug–Sep.

• Shaded moist places in valleys; 1500–2900 m. Sichuan (Hongya, Luding, Tianquan).

204. *Impatiens tienmushanica* Y. L. Chen, Bull. Bot. Res., Harbin 8(2): 9. 1988.

天目山凤仙花 tian mu shan feng xian hua

Plants annual, 40–50 cm tall, glabrous. Stem erect or slightly curved in upper part, laxly branched, base 5–7 mm in diam., nodes swollen in lower part, with few supporting roots and many fibrous roots. Leaves alternate, petiolate, in upper part smaller, shortly petiolate or sessile; petiole 1.5–3 cm; leaf blade oblong or ovate-elliptic, 7–12 × 3–5 cm, membranous, lateral veins 7–9 pairs, curved, base broadly cuneate or suborbicular, margin crenate-serrate, teeth mucronulate, apex caudate-acuminate. Inflorescences in upper leaf axils, racemose, (4 or) 5–7-flowered; peduncles 3–5 cm. Pedicels 1–1.5 cm, slender, elongate at fruiting, bracteate at base; bracts persistent, ovate-lanceolate, 2–3 mm, herbaceous, apex glandular-mucronulate. Flowers purplish, large, 3–3.5 cm deep. Lateral sepals 2, broadly ovate, ca. 4 × 3 mm, 3–5-veined, apex mucronulate, abaxial midvein not thickened. Lower sepal funnel-form, 2–2.5 cm, gradually narrowed into an incurved, 2-fid spur 1–4 cm; mouth subvertical, ca. 1.5 cm wide, tip acuminate. Upper petal suborbicular, 8–10 mm, apex emarginate, curved-mucronulate, abaxial midvein thickened, conspicuously carinate; lateral united petals clawed, ca. 2.3 cm, 2-lobed; basal lobes obovate-oblong; distal lobes dolabriform, large, obtuse; auricle inflexed, triangular. Filaments linear, ca. 3 mm; anthers ovoid, apex obtuse. Ovary erect, fusiform. Capsule linear-fusiform, 2–2.5 cm. Fl. and fr. Aug.

• Forest understories, humid moist stony places; 800–1000 m. Zhejiang.

1a. Spur of lower sepal ca. 1 cm 204a. var. *tienmushanica*

1b. Spur of lower sepal ca. 4 cm 204b. var. *longicalcarata*

204a. *Impatiens tienmushanica* var. *tienmushanica*

天目山凤仙花(原变种) tian mu shan feng xian hua (yuan bian zhong)

Spur of lower sepal ca. 1 cm.

• Understories of forests on slopes, humid moist stony places; ca. 800 m. Zhejiang.

204b. *Impatiens tienmushanica* var. *longicalcarata* Y. L. Xu & Y. L. Chen, Acta Phytotax. Sin. 37: 200. 1999.

长距天目山凤仙花 chang ju tian mu shan feng xian hua

Spur of lower sepal ca. 4 cm.

• Forest understories; ca. 1000 m. Zhejiang (Suichang).

205. *Impatiens julongshanica* Y. L. Xu & Y. L. Chen, Acta Phytotax. Sin. 37: 194. 1999.

九龙山凤仙花 jiu long shan feng xian hua

Plants annual, 18–55 cm tall, glabrous. Stem erect, simple. Leaves alternate, petiolate, crowded in upper part of stem, shortly petiolate; petiole 2–4 cm; leaf blade ovate-elliptic, 10–15 × 3–5 cm, membranous, with 2 or 3 setose basal glands,

setose between teeth, lateral veins 7–9 pairs, base cuneate, margin crenate, apex shortly caudate. Inflorescences in upper leaf axils, racemose, 4–6-flowered; peduncles erect, 3–5.5 cm, stout. Pedicels 8–17 mm, slender, bracteate at base; bracts caducous, broadly ovate, ca. 3 mm, membranous, apex cuspidate. Flowers white, ca. 3.5 cm deep. Lateral sepals 2, ovate, ca. 5 × 3 mm, apex mucronulate. Lower sepal funnellform, 2.5–2.8 cm deep, gradually narrowed into an erect spur 1.5–1.8 cm; mouth vertical, 1–1.2 cm wide, tip acute. Upper petal suborbicular, ca. 7 × 6 cm, apex emarginate, abaxial midvein slightly thickened, narrowly carinate; lateral united petals clawed, 1.6–1.8 cm, 2-lobed; basal lobes broadly triangular; distal lobes lanceolate, apex acute; auricle absent. Filaments linear, ca. 3 mm; anthers ovoid, apex obtuse. Ovary linear, 3–4 mm. Capsule linear-cylindric, ca. 3.5 cm. Seeds few, brown, oblong, 3–4 mm, rugose. Fl. and fr. Aug.

- Forest understories; 1000–1400 m. S Zhejiang (Suichang).

206. *Impatiens devolii* T. C. Huang, *Taiwania* 18(1): 49. 1973.

棣慕华凤仙花 di mu hua feng xian hua

Plants annual, 30–60 cm tall, glabrous. Stem erect, terete, few branched. Leaves alternate; petiole 1–3.5 cm; leaf blade pale green abaxially, dark green adaxially, elliptic or lanceolate-elliptic, 5–14 × 2–5 cm, with bristles between teeth, lateral veins 5 or 6 pairs, base cuneate, margin crenate, teeth mucronulate, apex caudate-acuminate. Inflorescences terminal or axillary, racemose, 3–6-flowered; peduncles 3–8 cm, slender. Pedicels 1–5 mm, slender, 1-bracteate at base; bract caducous, ovate-lanceolate, ca. 4 mm. Flowers yellow. Lateral sepals 2, elliptic, ca. 5.5 mm. Lower sepal saccate, constricted into an erect or incurved spur ca. 2.2 cm. Upper petal obovate, ca. 6.5 mm, apex obtuse, mucronulate; lateral united petals not clawed, subovate, 9–17 mm, unequally 2-lobed; basal lobes broadly ovate, short; distal lobes oblong. Filaments compressed, 4–5.5 mm; anthers obtuse. Ovary linear, ca. 5 mm. Capsule elongate, 2–2.5 cm. Seeds many, oblong, ca. 3 mm, granulose. Fl. and fr. Jul.

- Forest understories, shaded places at mountain summits; 2000–2100 m. Taiwan.

207. *Impatiens nubigena* W. W. Smith, *Notes Roy. Bot. Gard. Edinburgh* 8: 190. 1914.

高山凤仙花 gao shan feng xian hua

Plants annual, 10–40 cm tall, slender, glabrous, with few supporting roots and fibrous roots. Stem erect, many branched in lower part; branchlets opposite or subopposite. Leaves alternate, petiolate on lower stem, sessile at middle and upper stem; petiole 1.5–3.5 cm, slender; leaf blade pale green abaxially, green adaxially, broadly ovate, ovate-oblong, rhombic, or suborbicular, 1.5–3 × 1–2 cm, rarely 5–6 × 2–2.5 cm, membranous, lateral veins 5–7 pairs, base broadly cuneate or rounded-auriculate, cordate-amplexicaul, margin shallowly undulate-crenate or nearly entire, apex rounded or obtuse in lower part of stem. Inflorescences in upper leaf axils, 1- or 2-flowered; peduncles shorter than leaves, 1.5–2 cm. Pedicels 5–15 mm, linear, bracteate below flowers; bracts ± persistent, ovate or ovate-lanceolate, ca. 2 mm, membranous, apex acuminate. Flowers white, ca. 1 cm or smaller. Lateral sepals 2, broadly ovate, 2–3

mm, 3–5-veined, apex scarcely mucronulate. Lower sepal navicular, (4.5–)6–7 mm; mouth vertical, 5–6 mm wide, with an included spur; spur incurved, 1–1.5 mm. Upper petal orbicular, (3.5–)5–6 mm, cucullate, apex emarginate, mucronulate; lateral united petals not clawed, (7.5–)9–10 mm, 2-lobed; basal lobes obliquely ovate, ca. 3.5 mm, apex obtuse; distal lobes oblong-lanceolate to elliptic, ca. 2 × as long as basal lobe, apex obtuse; auricle absent. Filaments slightly compressed; anthers obtuse. Ovary erect, fusiform, 3–4 mm. Capsule linear, 2.5–4 cm. Seeds many, brown, tuberculate. Fl. Aug, fr. Sep.

- Understories of alpine *Quercus* or *Abies* forests, grasslands on slopes, along canals; 2700–4000 m. SW Sichuan, SE Xizang, NW Yunnan.

208. *Impatiens tenerrima* Y. L. Chen, *Acta Phytotax. Sin.* 16(2): 51. 1978.

柔茎凤仙花 rou jing feng xian hua

Plants annual, 5–10 cm tall, soft. Stem very slender, succulent, opposite-branched at middle part, rarely simple, often with 1 pair of suborbicular leaves at middle. Leaves alternate, petiolate; leaf blade ovate or broadly ovate, 1–3 × (0.8–)1–1.7 cm, thinly membranous, without glands, lateral veins 3 or 4 pairs, base broadly cuneate or truncate, glands absent, margin remotely coarsely crenate, apex shortly acute, mucronulate. Inflorescences axillary, 1-flowered; peduncles ca. as long as petioles or longer, often pendulous. Pedicels bracteate below flowers; bracts persistent, ovate, ca. 2 × 1 mm, submembranous, 1-veined, apex acuminate. Flowers yellow, with a brown-purple lower sepal, smaller, ca. 8 mm deep. Lateral sepals oblong or ovate-oblong, 5–6 × ca. 2.5 mm, thinly membranous, apex cuspidate, abaxial midvein slightly turgid-carinate. Lower sepal purple-brown striate, navicular, 4–5 mm deep, without a spur. Upper petal white, suborbicular, ca. 8 mm in diam., base slightly cordate, apex rostellate, abaxial midvein narrowly carinate; lateral united petals ± clawed, 2.5–3 cm, 2-lobed; basal lobes ovate-lanceolate, apex acuminate; distal lobes oblong-lanceolate, ca. 3 × as long as basal lobes, broader, apex elongate into a linear thread 1.7–1.8 cm; auricle inflexed, obliquely triangular. Filaments linear, 4–6 mm; anthers obtuse. Ovary fusiform, ca. 4 mm. Capsule not seen. Fl. Aug.

- Forest understories, stony places; ca. 2800 m. SW Sichuan (Muli).

209. *Impatiens dicentra* Franchet ex J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 268. 1908.

齿萼凤仙花 chi e feng xian hua

Plants annual, 60–90 cm tall. Stem erect, branched. Leaves alternate; petiole 2–5 cm; leaf blade ovate or ovate-lanceolate, 8–15 × 3–7 cm, with few stipitate glands at basal margin, lateral veins 6–8 pairs, base cuneate, margin crenate-serrate, teeth mucronulate, apex caudate-acuminate. Inflorescences axillary, 1-flowered; peduncles short. Petioles bracteate above middle; bracts ovate. Flowers yellow, large, to 4 cm deep. Lateral sepals 2, broadly ovate-orbicular, margin coarsely dentate, rarely entire, apex acuminate, abaxial midvein narrowly carinate. Lower sepal saccate, constricted into an incurved spur; spur short, 2-lobed. Upper petal orbicular, abaxial midvein cristate; lateral

united petals not clawed, 2-lobed; basal and distal lobes lanceolate, apex with a filamentous long hair; auricle inconspicuous. Filaments short; anthers obtuse. Ovary fusiform. Capsule linear. Seeds oblong or orbicular, ca. 3 mm. Fl. Jul–Aug, fr. Sep.

• Forest understories, grasslands, along streams or canals; 1000–2700 m. Guizhou, Henan, W Hubei, Hunan, Shaanxi, Sichuan, Yunnan (Zhenxiong).

210. *Impatiens paradoxa* C. S. Zhu & H. W. Yang, Bull. Bot. Res., Harbin 14: 243. 1994.

畸形凤仙花 *ji xing feng xian hua*

Plants annual, 30–65 cm tall, glabrous. Stem erect or basally ascending, striate when dry, succulent, branched, lower nodes swollen, with many fibrous roots. Leaves alternate, petiolate, crowded in upper part of stem; leaf blade pale green abaxially, dark green adaxially, elliptic or ovate-elliptic, 6–12 × 3–5.8 cm, membranous, with 2–4 pairs of stipitate basal glands, lateral veins 5 or 6 pairs, curved, base cuneate, margin coarsely crenate or crenate-serrate, teeth mucronulate, apex shortly acute or acuminate. Inflorescences in upper leaf axils, 1-flowered. Pedicels 1–1.5 cm, slightly elongate at fruiting, slender, bracteate above middle; bracts persistent, linear, 1.5–2.5 mm, or ovate, 4–5.5 mm, apex acuminate. Flowers yellow, 2.5–3 cm deep. Lateral sepals 2, purple spotted, obliquely ovate or suborbicular, 8–10 × 8–9 mm, abaxial midvein thickened, broadly carinate, inequilateral, margin 4(or 5)-denticulate on one side, apex acute. Lower sepal saccate, ca. 3 cm deep, abruptly constricted into 2 or 3 spurs; spurs incurved, 3.5–5 mm, 2-lobed, appearing as if 4–6 spurs; mouth oblique, 1.8–2 cm, tip acuminate. Upper petal suborbicular, 1–1.2 × 1.3–1.4 cm, base broadly cuneate, apex rounded, rostellate, abaxial midvein thickened, cristate at middle; lateral united petals clawed, 2.8–3 cm, 2-lobed; basal lobes oblong, small, 4.5–6 × ca. 4 mm, apex rounded, with a long, filamentous hair 6–7 mm; distal lobes dolabriform, 2.2–2.5 × 1.1–3 mm, apex acute, without a filamentous hair; auricle broad. Filaments linear; anthers ovoid, apex obtuse. Ovary fusiform, 4–5 mm. Capsule linear-cylindrical, 3–4 cm. Seeds many, brown, oblong-globose, ca. 2 mm, verruculose. Fl. and fr. Aug–Oct.

• Forest margins, shaded moist places by streams in valleys; 1400–1800 m. Henan.

211. *Impatiens fissicornis* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 87. 1890.

裂距凤仙花 *lie ju feng xian hua*

?*Impatiens fissicornis* var. *grandiflora* E. Pritzel; ?*I. fissicornis* var. *henryi* E. Pritzel.

Plants annual, 40–90 cm tall. Stem erect, slender, branched in upper part of stem. Leaves alternate; petioles of lower leaves longer, gradually shorter in upper leaves; leaf blade ovate-oblong or ovate-lanceolate, 4–7 × 2–3 cm, often few ciliate basal glands, base cuneate, margin coarsely crenate, teeth mucronulate, apex caudate-acuminate. Inflorescences in upper leaf axils, 1-flowered; peduncles 3–4 cm. Pedicels bracteate above middle; bracts narrowly lanceolate. Flowers yellow or orange-yellow. Lateral sepals 2, subovate-orbicular, apex mu-

cronulate. Lower sepal brown spotted, saccate, narrowed into a hooked spur; spur short, 2-lobed; tip acute. Upper petal suborbicular, ca. 1.5 cm in diam., apex rostellate, abaxial midvein broadly thickened, cristate; lateral united petals clawed, 2-lobed; basal lobes oblong, smaller, apex with a filamentous long hair; distal lobes dolabriform, large, 2.5–3 cm, apex acute. Anthers obtuse. Capsule elliptic. Fl. Aug–Sep.

• Forests, shaded moist places in valleys; 1200–2100 m. Gansu, Hubei, Shaanxi.

212. *Impatiens laciniifera* Y. L. Chen, Acta Phytotax. Sin. 16(2): 47. 1978.

撕裂萼凤仙花 *si lie e feng xian hua*

Plants annual, 60–90 cm tall. Stem robust, branched, conspicuously striate when dry. Leaves alternate, petiolate; leaf blade elliptic or elliptic-ovate, rarely ovate-lanceolate, 3–8 × 1.5–2.5(–3) cm, membranous, with 2 or 3 pairs of stipitate basal glands, abaxially sparsely pilose on veins, lateral veins 8 or 9 pairs, base broadly cuneate or subrounded, margin coarsely crenate, apex long acuminate. Inflorescences in upper leaf axils, 1-flowered; peduncles (0.8–)1–1.5 cm. Pedicels bracteate above middle; bracts persistent, oblong-ovate, 5–6 mm, abaxially pilose on veins, 5–7-veined. Flowers yellow, large, to 4.5 cm deep. Lateral sepals 2, orbicular or slightly cordate, margin irregularly fimbriate-lacerate, 7–9-veined; midvein and other veins abaxially thickened, narrowly carinate, irregularly lacinate. Lower sepal striate, deeply saccate, to 3 cm deep, abruptly narrowed into a hooked, incurved spur; spur short, 5–6 mm, 2-lobed. Upper petal orbicular, 1.3–1.4 cm in diam., abaxial midvein broadly cristate, crista 2-lobed; basal lobe large, rounded; distal lobes small, undulate, apex mucronulate; lateral united petals ± clawed, 2–2.2 cm, 2-lobed; basal lobes orbicular; distal lobes oblong-dolabriform, ca. 2 × as long as basal lobes; auricle rounded. Filaments 3–5 mm; anthers suborbicular, apex obtuse. Ovary fusiform. Capsule linear, ca. 2.5 cm, papillose. Seeds 7 or 8, brown, subglobose, compressed, ca. 2 mm, glabrous, ± smooth. Fl. Aug–Sep.

• Shaded moist places in valleys; ca. 1600 m. S Gansu, NE Sichuan.

213. *Impatiens platyceras* Maximowicz, Trudy Imp. S.-Peterburgsk. Bot. Sada 11: 89. 1890.

宽距凤仙花 *kuan ju feng xian hua*

Plants annual, 30–100 cm tall, or higher. Stem erect, branched. Leaves alternate; petioles longer in lower leaves, gradually shorter to subsessile in upper leaves; leaf blade pale green abaxially, green adaxially, ovate or lanceolate-ovate, 7–12 × 4–6 cm, with few pairs of denticulate basal glands, abaxially sparsely pilose on veins, base slightly cordate or obtuse-rounded, margin coarsely crenate, apex caudate acuminate. Inflorescences in upper leaf axils, 1–4-flowered. Pedicels 2–3 cm, slender, bracteate above middle; bracts narrowly ovate, ca. 3 mm. Flowers pale purple, large, 2–3 cm deep. Lateral sepals 2, broadly ovate or suborbicular, 5–6 mm, thinly membranous, margin irregularly lacerate, apex acute. Lower sepal purple-brown spotted, saccate, ca. 1 × 2 cm, narrowed into an incurved spur; spur short, 2-lobed. Upper petal broadly reniform, ca. 1.2

cm, apex mucronulate, abaxial midvein cristate; lateral united petals ca. 2 cm, 2-lobed; basal lobes oblong, small, apex with a filamentous long hair; distal lobes dolabriform, large, apex acute. Anthers obtuse. Capsule linear, ca. 8 mm. Fl. Jul–Aug.

• Forest understories, shaded moist places; 2000–3200 m. Gansu, Hubei, Sichuan.

214. *Impatiens toxophora* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 269. 1908.

东俄洛凤仙花 *dong e luo feng xian hua*

Plants annual, ca. 60 cm tall, glabrous. Stem erect, branched in lower part; branches and branchlets erect. Leaves alternate; petiole 1–3 cm; leaf blade ovate, 4–7 × 3–3.5 cm, lateral veins 6 or 7 pairs, fine, base cuneate, attenuate into petiole, margin crenate or crenulate, teeth mucronulate, apex acute or acuminate. Inflorescences 1–3-flowered; peduncles very short. Pedicels short, bracteate at middle; bracts ovate, apex long mucronulate. Flowers ?white, small. Lateral sepals 2, broadly ovate-cordate, ca. 1 cm wide, membranous, apex acuminate, abaxial midvein cristate. Lower sepal funnellform or subsaccate, narrowed into a 2-lobed, long spur; mouth subvertical, ca. 1.5 cm. Upper petal orbicular, 1–1.5 cm, apex long aristate, abaxial midvein broadly cristate; lateral united petals 1.2–2.5 cm, long and broadly clawed, 2-lobed; basal lobes ovate, small, with a filamentous long hair; distal lobes narrowly or broadly dolabriform, very large, apex with long filamentous hairs; abaxial auricle inflexed. Filaments short, broad; anthers obtuse. Ovary erect, fusiform. Fl. Sep.

• By streams in valleys; 2100–2400 m. W Sichuan.

215. *Impatiens platychna* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 270. 1908.

紫萼凤仙花 *zi e feng xian hua*

Plants annual, (30–)60–100 cm tall, glabrous, with few supporting roots. Stem erect, green or sometimes purple-tinged, robust, branched. Leaves alternate; petiole 2–5 cm, upper leaves subsessile; leaf blade pale green or sometimes purple abaxially, green adaxially, ovate-oblong, ovate, or ovate-lanceolate, 6–15 × 3–4.5 cm, submembranous, glabrous, lateral veins 7 or 8 (or 9) pairs, base cuneate, narrowed, or cordate, margin coarsely crenate-serrate, teeth retuse, mucronulate, apex acuminate or caudate-acuminate. Inflorescences terminal at apices of branches, 1- or 2 (or 3)-flowered; peduncles 0.5–2 cm, slender. Pedicels short, 0.5–1 cm, bracteate above middle; bracts persistent, ovate or ovate-lanceolate, 3–4 × ca. 2 mm, apex acuminate. Flowers usually bicolored, large, 3–4 cm deep. Lateral sepals 2, brown to purple-red when dry, purple spotted, orbicular, 1.3–1.5 cm wide, shiny, many veined, abaxial midvein not thickened. Lower sepal deeply saccate, 2.5–3 cm deep, abruptly narrowed into an incurved spur; spur stout, short, 2-lobed; mouth subvertical or slightly ascending, tip acute. Upper petal purple or yellow, orbicular, ca. 1.5 cm, apex retuse, mucronulate, abaxial midvein thickened, broadly cristate; lateral united petals not clawed, 2.5–3 cm, 2-lobed; basal lobes orbicular, apex with a filamentous long hair; distal lobes dolabriform, longer, with a long filamentous hair; auricle inflexed, narrow. Filaments short, broad; anthers obtuse. Ovary erect, fusiform. Capsule linear, 2.5–4 cm. Seeds many, oblong, 2–3 mm. Fl. Aug–Sep, fr. Oct.

• Forest margins, thickets, moist places, roadsides; 700–2500 m. Sichuan (Emei Shan).

216. *Impatiens vittata* Franchet, *Nouv. Arch. Mus. Hist. Nat.*, sér. 2, 8: 209. 1886.

条纹凤仙花 *tiao wen feng xian hua*

Plants annual, ca. 60 cm tall, glabrous. Stem erect, branched. Leaves alternate, petiolate in lower leaves, subsessile in upper ones; petiole 1–3 cm; leaf blade ovate-lanceolate, 7–10 × 2.5–3.5 cm, membranous, lateral veins 5 or 6 pairs, fine, base acute, margin crenate, teeth mucronulate, apex acuminate or caudate. Inflorescences in upper leaf axils, 1-flowered; peduncles ca. 1 cm. Pedicels bracteate at middle; bracts ovate, apex acute. Lateral sepals 2, pale green, orbicular, 1.2–1.5 cm in diam., abaxial midvein with a small sac at base. Lower sepal saccate, ca. 3 cm, narrowed into an incurved spur; spur short, 2-lobed; mouth subvertical, tip acute or acuminate. Upper petal orbicular, abaxial midvein large, cristate; lateral united petals broadly clawed, ca. 2.8 cm, 2-lobed; lobes with a filamentous long hair at apex; basal lobes densely purple spotted; distal lobes purple striate; auricle rounded. Filaments linear, short; anthers obtuse. Ovary erect, linear. Capsule unknown. Fl. Aug–Sep.

• Forest margins, shaded moist places; 1500–2000 m. W Sichuan.

217. *Impatiens robusta* J. D. Hooker, *Hooker's Icon. Pl.* 30: t. 2970. 1911.

粗状凤仙花 *cu zhuang feng xian hua*

Plants annual, glabrous. Stem robust, succulent; branches and branchlets ascending, gradually slender. Leaves alternate, petiolate, or subsessile in upper leaves; petiole 1–7 cm; leaf blade green, ovate or orbicular, large, 5–15 × 3–4 cm, thinly membranous, lateral veins 8–10 pairs, base rounded or cuneate, attenuate into petiole, margin coarsely crenate or crenate-serrate, apex acute or acuminate, sometimes caudate. Inflorescences in upper leaf axils, 1- or 2-flowered; peduncles 2–3 cm. Pedicels short, bracteate at middle or above; bracts ovate-lanceolate or linear-lanceolate, 3–5 mm. Flowers large, ca. 4 cm deep. Lateral sepals 2, green, orbicular, 1–1.5 cm in diam., apex acuminate, abaxial midvein fine, turgid. Lower sepals saccate or saccate-funnelform, ca. 4 cm, gradually narrowed into a truncate or 2-lobed spur; spur short, 5–10 mm; mouth ascending, ca. 2 cm wide, tip acuminate. Upper petal orbicular or reniform, 1.4–1.6 cm wide, abaxial midvein narrowly cristate, apex acutely hooked; lateral united petals not clawed, 2.5–2.8 cm, 2-lobed; basal lobes oblate, apex with a filamentous long hair; distal lobes broadly dolabriform, apex acuminate, with a long filamentous hair; auricle inflexed. Filaments short, broad; anthers obtuse. Ovary erect, linear. Capsule (immature) linear. Fl. Jul.

• Sichuan.

218. *Impatiens soulieana* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 270. 1908.

康定凤仙花 *kang ding feng xian hua*

Plants glabrous. Stem erect; branches and branchlets erect or ascending, long, slender. Leaves alternate; petiole 1–5 cm,

slender; leaf blade ovate, rarely oblong or orbicular, 5–9 × 2.5–3 cm, rigid, lateral veins 5–7 pairs, base rounded or acute, attenuate into petiole, margin coarsely crenate, teeth obtuse, apex acute or acuminate. Inflorescences 1–3-flowered; peduncles short, slender. Pedicels bracteate at middle; bracts ovate, very small, lateral veins 5–7 pairs, margin entire or denticulate, apex acuminate. Flowers yellow, ca. 2.5 cm wide. Lateral sepals 2, broadly ovate, rarely orbicular, 0.8–1 cm, apex acuminate, abaxial midvein narrowly carinate. Lower sepal funnel-form, gradually narrowed into a spur; spur ca. as long as or longer than limb, stout, 2-lobed; mouth vertical, tip long acuminate. Upper petal orbicular, 2–2.2 cm in diam., apex truncate or rostellate, abaxial midvein narrowly cristate; lateral united petals ± clawed, ca. 2.8 cm, 2-lobed; basal lobes ovate, apex acuminate, with a filamentous long hair; distal lobes dolabriform, ca. 2 × as long as basal lobes, apex rounded or with a seta; auricle inflexed, narrow. Filaments longer; anthers small, obtuse. Ovary fusiform. Capsule fusiform-cylindric. Seeds few, glabrous. Fl. and fr. unknown.

• Mixed forests, thickets, moist places by canals; 1400–3000 m. Sichuan.

219. *Impatiens brevipes* J. D. Hooker, Bull. Misc. Inform. Kew 1910: 271. 1910.

短柄凤仙花 duan bing feng xian hua

Plants annual, ca. 50 cm tall, glabrous. Stem simple, long naked in lower part, robust, laxly leafy in upper part. Leaves alternate; petiole 3–5 cm; leaf blade ovate, 6–10 × 3–4 cm, membranous, without or with basal glands, both surfaces glabrous, setose between teeth, lateral veins 5–7 pairs, base rounded or cuneate, margin coarsely crenate, apex caudate-acuminate. Inflorescences 1-flowered; peduncles very short. Pedicels with bracts subulate. Flowers white, ca. 3 cm wide. Lateral sepals 2, orbicular, 1–2 cm wide, 7-veined, abaxial midvein acutely carinate. Lower sepal funnel-form, ca. 3 cm deep, narrowed into a 2-lobed, incurved spur ca. 1/2 as long as limb; mouth oblique, broad, tip acuminate. Upper petal orbicular, cornute, abaxial midvein broadly thickened, cristate; lateral united petals broadly clawed, ca. 2.7 cm, 2-lobed; basal lobes orbicular, apex narrowed, involute, long mucronulate for ca. 4 cm; distal lobes broadly dolabriform, ca. 2 × as large as basal lobes; auricle inflexed, large. Filaments short; anthers obtuse. Ovary striate, narrow. Capsule unknown. Fl. Aug–Sep.

• Forest margins, shaded moist places; 1500–1800 m. Sichuan (Ebian, Emei Shan).

220. *Impatiens mussotii* J. D. Hooker, Nouv. Arch. Mus. Hist. Nat., sér. 4, 10: 271. 1908 [*“mussoti”*].

慕索凤仙花 mu suo feng xian hua

Plants annual, small, glabrous. Stem erect, robust, often virgately branched; branchlets 10–20 cm, leafy. Leaves alternate, shortly petiolate with petiole 3–5 mm in lower leaves; leaf blade ovate, 2–5 cm, with basal glands, lateral veins 4–6 pairs, fine, base rounded or cuneate, attenuate into petiole, margin crenate or crenulate, teeth mucronulate, apex acute; blades of upper leaves ovate or oblong, base subcordate, margin with stipitate glands. Inflorescences 1- or 2-flowered; peduncles 5–

10 mm. Pedicels short, bracteate at middle; bracts ovate, apex acuminate or aristate. Flowers ?white, 1.5–2 cm wide. Lateral sepals 2, orbicular, ca. 8 mm in diam., apex mucronulate, abaxial midvein narrowly cristate. Lower sepal funnel-form, limb 2–2.5 cm deep, base narrowed into an incurved spur; spur slender, 2-lobed; mouth vertical, tip acute. Upper petal orbicular, ca. 1.4 cm in diam., abaxial midvein broadly cristate; lateral united petals broadly clawed, 3–3.5 cm, 2-lobed; basal lobes ovate, small, apex with a filamentous long hair; distal lobes dolabriform, very large, curved, apex rounded; auricle inflexed, long. Filaments linear, short; anthers obtuse. Ovary erect, fusiform. Capsule sessile, narrowly linear-oblong, ca. 3 cm. Seeds many, oblong, 4–4.5 mm, rugose. Fl. and fr. Jul–Oct.

• Shaded moist places by canals; 1400–3000 m. Sichuan (Kangding).

221. *Impatiens conaensis* Y. L. Chen, Acta Phytotax. Sin. 18: 381. 1980.

错那凤仙花 cuo na feng xian hua

Plants annual, 30–50 cm tall. Stem erect, often curved, branched in lower part, glabrous. Leaves alternate, petiolate or subsessile in upper leaves; petiole 3–8 mm; leaf blade elliptic or ovate-lanceolate, 4–8 × 1.5–3.2 cm, membranous, often with few fibrous glands on basal margin, lateral veins 7–9 pairs, base rounded or subrounded, margin crenate, teeth retuse and mucronulate, apex acuminate or caudate. Inflorescence solitary, axillary, 1- or 2-flowered; peduncles often shorter than leaves. Pedicels 1–1.5 cm, slender, bracteate at middle; bracts persistent, ovate or ovate-lanceolate, 3–4 mm, apex long acuminate. Flowers yellowish, large, 2.5–3 cm deep. Lateral sepals 2, broadly ovate or suborbicular, ca. 1 cm, hyaline margined, margin entire, apex cuspidate, abaxial midvein slightly thickened, carinate. Lower sepal shortly saccate, abruptly narrowed into an incurved spur; spur 4–5 mm, 2-lobed; mouth vertical, tip acuminate. Upper petal suborbicular, 1.2–1.3 cm in diam., hyaline margined, margin entire, abaxial midvein obtusely cristate; lateral united petals not clawed, 1.5–1.7 cm, 2-lobed; basal lobes ovate-lanceolate, small, apex with a filamentous long hair; distal lobes dolabriform, apex obtuse or slightly acute; auricle inflexed, subovate. Anthers obtuse. Ovary erect, fusiform. Capsule linear-oblong, ca. 2.5 cm. Seeds few, brown, oblong, ca. 4 mm, smooth. Fl. Jul–Aug.

• Forest margins, grasslands on slopes; 2700–2800 m. SE Xizang (Cona).

222. *Impatiens waldehiana* J. D. Hooker, Hooker's Icon. Pl. 30: t. 2971. 1911.

瓦氏凤仙花 wa shi feng xian hua

Plants glabrous. Stem erect; branches and branchlets ascending. Leaves alternate; petiole 3–5 cm, stout; leaf blade ovate, 6–10 cm, membranous, often with stipitate glands at basal margin, lateral veins 5–7 pairs, fine, bases of lower and middle leaves cuneate or narrowly cuneate, attenuate into petiole, base of upper ones rounded, margin coarsely crenate-seriate, apex caudate-acuminate. Inflorescences in upper leaf axils, 2-flowered; peduncles 3–4 cm. Pedicels very short, bracteate at middle. Flowers spreading, large, ca. 4 cm deep. Lateral sepals 2, ovate, ca. 1.4 cm, base cordate, apex aristate-acuminate,

abaxial midvein thickened, carinate below middle. Lower sepal broadly funnellform, ca. 2.5 cm deep, gradually narrowed into an incurved spur; spur shorter than limb, 2-lobed; mouth subvertical, ca. 2.5 cm, tip acuminate. Upper petal orbicular, large, ca. 2.2 cm, cucullate, base truncate, apex recurved-rostellate, abaxial midvein slightly thickened; lateral united petals broadly shortly clawed, ca. 3 cm, 2-lobed; basal lobes small, ovate, apex acuminate, with a long filamentous hair; distal lobes lunar, large, apex obtuse; auricle inflexed, long. Filaments linear, ca. 5 mm; anthers obtuse. Ovary ovoid. Capsule unknown. Fl. Jul–Aug.

- W Sichuan.

223. *Impatiens davidii* Franchet, *Nouv. Arch. Mus. Hist. Nat.*, sér. 2, 5: 217. 1883.

牯岭凤仙花 *gu ling feng xian hua*

Plants annual, to 90 cm tall. Stem erect or ascending in lower part, robust, succulent, branched, glabrous, nodes swollen in lower part, with many fibrous roots. Leaves alternate; petiole 4–8 cm; leaf blade elliptic, 5–10 × 3–4 cm, glabrous, lateral veins 5–7 pairs, curved, base cuneate, margin coarsely crenate, teeth mucronulate, apex caudate-acuminate. Inflorescences 1-flowered; peduncles ca. 1 cm, to 2 cm at fruiting. Pedicels 2-bracteate above middle; bracts persistent, ovate-lanceolate, ca. 3 mm, herbaceous. Flowers yellowish. Lateral sepals 2, broadly ovate, ca. 1 × 0.5–0.6 cm, membranous, 9-veined, margin entire, apex mucronulate. Lower sepal yellow striate, saccate, abruptly narrowed into a hooked spur; spur ca. 8 mm, 2-lobed. Upper petal suborbicular, ca. 1 cm in diam., apex emarginate, shortly rostellate, abaxial midvein green cristate; lateral united petals clawed, 1.5–2 cm, 2-lobed; basal lobes oblong, small, apex acuminate or caudate; distal lobes dolabriform, large, apex obtuse; auricle obtuse, cornute. Filaments linear, slightly swollen above; anthers ovoid-orbicular, apex obtuse. Ovary erect, fusiform. Capsule linear-cylindric, 3–3.5 cm. Seeds many, brown, subglobose, smooth. Fl. Jul–Sep. $2n = 20^*$.

- Forest understories, moist places in valleys, grasslands; 300–700 m. Anhui, Fujian, Guangdong, Hubei, Hunan, Jiangxi, Zhejiang.

224. *Impatiens tayemonii* Hayata, *Icon. Pl. Formosan.* 6: 4. 1916.

关雾凤仙花 *guan wu feng xian hua*

Plants erect, 25–50 cm tall. Stem terete, branched in upper part; branches ascending. Leaves alternate; petiole 0.5–2.5 cm; leaf blade lanceolate-elliptic, 4–10 × 1.3–3 cm, membranous, glabrous, lateral veins 4 or 5 pairs, base cuneate-obtuse or attenuate, margin crenate, teeth emarginate or truncate, mucronulate, apex acuminate. Flowers solitary, rarely 2; peduncles recurved, 1.5–4.5 cm, slender. Pedicels 2-bracteate above middle; bracts linear or ovate, 2–4 mm. Flowers yellow, pink or reddish spotted. Lateral sepals 2, ovate-orbicular, 6.5–7 mm, 7- or 8-veined, apex mucronulate. Lower sepal broadly funnellform, 1.5–2 cm deep, abruptly constricted into a spur; spur incurved, ca. 2.5 cm, 2-lobed; mouth vertical, ca. 6 mm wide, tip cuspidate. Upper petal suborbicular, ca. 1.1 cm, apex rostellate, abaxial midvein thickened, cristate; lateral united petals clawed, 1.5–2 cm, 2-lobed; basal lobes ovate, narrow, apex with a long filamentous hair; distal lobes dolabriform, apex obtuse. Filaments

flattened, 4–4.5 mm; anthers ovoid, apex obtuse. Ovary fusiform, ca. 4.5 mm. Capsule linear, ca. 2.2 cm. Seeds many, oblong, ca. 3 mm, glabrous. Fl. Jul–Aug.

- Understories of coniferous forests, shaded wet places; 1700–3000 m. Taiwan.

225. *Impatiens weihsiensis* Y. L. Chen, *Acta Phytotax. Sin.* 16(2): 52. 1978.

维西凤仙花 *wei xi feng xian hua*

Plants annual, 15–40 cm tall. Stem striate when dry, branched. Leaves alternate, petiolate; leaf blade ovate, ovate-oblong, or ovate-lanceolate, 4–10 × 1–3(–3.5) cm, thinly membranous, often with 1 or 2 pairs of setose glands, glabrous, lateral veins 6–8 pairs, base slightly acute or subrounded, margin coarsely crenate, apex caudate-acuminate. Inflorescences axillary, 1-flowered; peduncles shorter than leaves. Pedicels bracteate above middle; bracts persistent, ovate, 3–3.5 mm, apex acuminate. Flowers spreading, purple or pink-purple, 3.5–4 cm deep. Lateral sepals 2, broadly ovate, ca. 9 × 11–12 mm, thinly papery, subinequilateral, base rounded or subcordate, margin 4- or 5-denticulate on one side, apex cuspidate. Lower sepal purple striate, funnellform, 1.7–1.8 cm deep, narrowed into a curved spur; spur 1.4–1.5 cm, 2-lobed. Upper petal orbicular, ca. 1.3 cm in diam., apex rostellate, abaxial midvein narrowly carinate, cristate at middle; lateral united petals ± clawed, 2.4–2.5 cm; basal lobes ovate, apex acute, with a long filamentous hair; distal lobes orbicular-dolabriform, ca. 2.5 × as long as basal lobes, apex obtuse, with a filamentous long hair; auricle inflexed, rounded. Filaments linear, 4–5 mm; anthers obtuse. Ovary erect, fusiform. Capsule (immature) linear, 1.2–1.3 cm. Fl. Jun–Aug.

- Mixed forests, grasslands, along canals; 2300–3600 m. NW Yunnan (Weixi).

226. *Impatiens lecomtei* J. D. Hooker, *Nouv. Arch. Mus. Hist. Nat.*, sér. 4, 10: 271. 1908.

滇西北凤仙花 *dian xi bei feng xian hua*

Plants annual, 30–60 cm tall, glabrous. Stem erect, simple or branched. Leaves alternate, lower and middle ones long petiolate, upper ones shortly petiolate or sessile; petiole 3–5 cm; leaf blade pale green abaxially, green adaxially, ovate or ovate-lanceolate, or oblong-ovate, 10–15 × 2.5–3 cm, thinly membranous, lateral veins (6–)10 pairs, base cuneate, attenuate into petiole, or upper ones rounded or cordate, margin coarsely crenate, teeth emarginate, mucronulate, apex acute, acuminate, or caudate-acuminate. Inflorescences in upper leaf axils, 1-flowered; peduncles erect, shorter than leaves, 1.5–2 cm, slender. Pedicels bracteate at middle; bracts persistent, ovate, ca. 3 mm, apex acuminate. Flowers pink, large, 3.5–4 cm deep. Lateral sepals 2, orbicular, 1–1.5 cm in diam., papery, abaxial midvein carinate, 7-veined. Lower sepal violet striate, broadly funnellform, 3–3.5 cm deep, base gradually narrowed into an incurved spur; spur 1–1.5 cm, slender, 2-lobed; mouth vertical, ca. 2.5 cm wide, tip acuminate. Upper petal orbicular, 1.8–2.2 cm in diam., apex truncate or acuminate or rarely retuse, rostellate, abaxial midvein thickened, broadly cristate, crista entire, rounded; lateral united petals ± clawed, 3–3.5 cm, 2-lobed; basal lobes ovate, small, apex fine, with a long filamentous

hair; distal lobes dolabriform, large, apex obtuse with a seta; auricle inflexed, narrow. Filaments linear, short; anthers obtuse. Ovary erect, fusiform. Capsule linear, 2.5–3 cm. Seeds many, subglobose, compressed, 3–4 mm. Fl. Aug–Sep.

- Mixed forests, stony crevices; 2300–3000 m. NW Yunnan.

227. *Impatiens gongshanensis* Y. L. Chen, Acta Phytotax. Sin. 38: 560. 2000.

贡山凤仙花 gong shan feng xian hua

Plants annual, small, 10–30 cm tall, glabrous, with few fibrous roots. Stem erect, simple or rarely shortly branched in lower part, long naked. Leaves alternate, usually crowded at apex of stem, or subverticillate; petiole 5–10 mm; leaf blade gray-green abaxially, dark green adaxially, lanceolate or narrowly oblong-lanceolate, 3–6(–7) × 0.5–1.5 cm, membranous, glabrous, lateral veins 5 or 6 pairs, base cuneate, attenuate into petiole, margin densely crenate, teeth mucronulate, apex acuminate or long acuminate. Inflorescences in upper leaf axils, 1-

flowered; peduncles shorter than leaves, 2–3 cm. Pedicels bracteate at ?middle or ?above; bracts persistent, ovate or ovate-lanceolate, 4–5 × ca. 2 mm, herbaceous, apex acute. Flowers blue-purple, 3.5–4 cm deep. Lateral sepals 2, obliquely ovate or ovate-orbicular, 7–8 × 5–6 mm, adpressed puberulent, 5–7-veined, apex acute. Lower sepal broadly funnellform, 2.5–3 cm deep, abruptly narrowed into an involute spur; spur pink striate, 1.5–2 cm, simple; mouth subvertical, 1.8–2 cm wide, tip acute. Upper petal orbicular, 1.3–1.5 cm in diam., apex acute, abaxial midvein thickened, cristate at middle or below; lateral united petals not clawed, 2.3–2.5 cm, 2-lobed; basal lobes orbicular-ovate, apex without a filamentous long hair; distal lobes dolabriform, apex without a seta; auricle inflexed, lunar. Filaments linear, 3–4 mm; anthers ovoid, apex obtuse. Ovary erect, fusiform, 3–4 mm. Capsule (immature) linear, ca. 1 cm. Fl. Aug–Sep.

- Mixed hardwood understories at creek sides, stony crevices by waterfalls; 1200–1300 m. NW Yunnan (Gongshan).

Species incertae sedis

The following species with united lateral petals are difficult to place taxonomically because either the protologues are too brief or we have not seen the relevant specimens.

Impatiens dichrocarpa H. Léveillé, Cat. Pl. Yun-Nan, 120. 1916.

色果凤仙花 se guo feng xian hua

Plants annual, small, glabrous. Stem erect; branchlets often curved. Leaves alternate; leaf blade gray-green, small, margin aristate-serrate. Inflorescences many flowered. Flowers very small, ca. 5 mm. Lateral sepals linear. Capsule yellow, ca. 2.1 mm.

- Streamsides; ca. 2700 m. Yunnan (Tongchuan).

Impatiens mairei H. Léveillé, Cat. Pl. Yun-Nan, 122. 1916.

岔河凤仙花 cha he feng xian hua

Plants annual, conspicuously hairy. Leaves crowded in upper part of stem; leaf blade 3–6 cm, margin aristate-serrate. Pedicels glandular. Flowers pink. Lateral sepals brown, lateral veins conspicuous, milky-white, margin yellow-brown.

- Meadows; 2600–2700 m. Yunnan (Tongchuan).

This species is hairy except for the flowers. It is related to *Impatiens lasiophyton*.

Impatiens vaniotiana H. Léveillé, Cat. Pl. Yun-Nan, 122. 1916.

巧家凤仙花 qiao jia feng xian hua

Plants annual, glabrous. Stem erect, branched. Leaves alternate, petiolate, upper leaves sessile; leaf blade 8–10 × 3–4 cm, at least coarsely crenate on terminal margin, aristate. Flowers yellow, large. Lateral sepals conspicuously cuspidate.

- Streamsides on mountains; ca. 3200 m. Yunnan (Qiaojia).

This species is related to *Impatiens mairei* but differs in that the plant is glabrous with yellow flowers.

2. HYDROCERA Blume ex Wight & Arnott, Prodr. Fl. Ind. Orient. 1: 140. 1834, nom. cons.

水角属 shui jiao shu

Tytonia G. Don.

Herbs hydrophytic or of swamps. Stem erect or floating, elongate, 5-angled, nodes often with adventitious roots. Leaves alternate, sessile, with 2 basal glands, margin serrate. Inflorescences axillary, 1–5-flowered; peduncles short. Pedicels slender, bracteate at base. Flowers symmetrical, colored. Sepals 5, lateral sepals 4; outer 2: oblong or elliptic-oblong, apex obtuse or slightly acute; inner 2: elliptic-oblong, longer. Lower sepal (lower by resupination) navicular, spurred. Petals 5, all free; upper petal subcucullate, obovate; lateral petals 4, upper 2 (upper by resupination) narrowly oblong; lower 2 longer and narrow, apex swollen. Stamens 5; anthers 2-celled, apically slightly connate and involute, apically dehiscent. Ovary 5-loculed, with 2 or 3 anatropous ovules per locule; stigmas 5, sessile, subulate. Fruit a fleshy pseudoberry, globose, 5-angled, indehiscent; fruit coat cartilaginous, 5-loculed, with 1 seed per locule. Seeds curved, rugose, endosperm absent.

One species: tropical Asia.

1. *Hydrocera triflora* (Linnaeus) Wight & Arnott, Prodr. Fl. Ind. Orient. 1: 140. 1834.

水角 shui jiao

Impatiens triflora Linnaeus, Sp. Pl. 2: 938. 1753; *Hydrocera angustifolia* (Blume) Blume; *I. angustifolia* Blume; *I. natans* Willdenow; *Tytonia natans* (Willdenow) G. Don; *T. triflora* (Linnaeus) C. E. Wood.

Plants perennial, hydrophytic, glabrous. Stem erect, to 1 m tall, fleshy, many branched; underwater part white, ca. 4 mm in diam., with fibrous roots; above water part green, often pink-tinged. Leaves alternate, sessile or shortly petiolate, with 1 pair of sessile basal glands; leaf blade pale green abaxially, dark green adaxially, linear or linear-lanceolate, 10–20 × 0.6–1.5 cm, lateral veins 10–17 pairs, base cuneate, margin serrate, apex acute or acuminate. Racemes 3–5-flowered; peduncles 0.7–1.6 cm. Pedicel 1.2–3 cm, slender, bracteate at base; bracts caducous, lanceolate, 6–9 mm, apex acute or acuminate. Flowers pink or yellowish. Lateral sepals 4; outer 2: 1.2–1.5 × ca. 0.8 cm, apex slightly acute or obtuse; inner 2: 1–1.5 × ca. 1.2 cm,

apex obtuse. Lower sepal navicular, 1.5–2 cm deep, mouth vertical, abruptly constricted into an incurved spur; spur 6–8 mm. Upper petal subcucullate, obovate, 1.5–1.9 × 1.2–1.5 cm, apex mucronulate; lateral petals 4, all free; upper 2 elliptic to elliptic-obovate, 1.3–1.5 cm × 7–9 mm; lower 2 narrowly oblong, 2–2.5 cm × 6–8 mm, apex slightly obtuse. Stamens 5, 0.9–1.1 cm; anthers obtuse. Ovary glabrous. Fruit purple-red at maturity, globose, 0.8–1 cm. Seeds 1 per locule, rugose. Fl. and fr. Sep–Nov. $2n = 16$.

Lakesides, swamps, wetlands, rice fields; ca. 100 m. S Hainan (Lingshui, Sanya) [Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Sri Lanka, Thailand, Vietnam].