

20. TORENIA Linnaeus, Sp. Pl. 2: 619. 1753.

蝴蝶草属 hu die cao shu

Herbs, glabrous or villous, rarely hispidulous. Leaves opposite, usually petiolate. Inflorescences racemose or in axillary umbellate fascicles, rarely dichotomous and terminal flowers reduced, or 1-flowered. Flowers pedicellate. Calyx ribbed or winged, often 2-lipped and short toothed, usually 5-lobed. Corolla 2-lipped; lower lip 3-lobed, lobes subequal; upper lip erect, apex entire, emarginate, or 2-lobed. Stamens 4; anterior filaments appendaged or less commonly unappendaged; posterior stamens included; anthers connivent in pairs, locules often apically confluent. Ovary apically usually with short coarse hairs. Style apically 2-lamellate. Capsule oblong, included in persistent calyx, septicidal. Seeds numerous, scrobiculate.

About 50 species: mostly in tropical Africa and Asia; ten species in China.

- 1a. Calyx ribbed or narrowly winged, wing at anthesis less than 1 mm wide.
 - 2a. Plants hirsute; corolla 1.2–1.4 cm 1. *T. benthamiana*
 - 2b. Plants pilose, hirtellous, or villous; corolla 0.8–1.2 cm.
 - 3a. Inflorescences 2–5-flowered axillary fascicles 5. *T. parviflora*
 - 3b. Inflorescences racemose or dichotomous.
 - 4a. Inflorescences usually dichotomous; plants creeping or ascending 2. *T. biniflora*
 - 4b. Inflorescences racemose; plants erect or sometimes diffuse 3. *T. flava*
- 1b. Calyx broadly winged, wing at anthesis more than 1 mm wide.
 - 5a. Filaments not appendaged.
 - 6a. Corolla 2.5–4 cm, exceeding calyx by 1–2.3 cm; inflorescences usually racemose; stems simple or branched above middle; often cultivated 6. *T. fourmieri*
 - 6b. Corolla 1.5–2.2 cm, exceeding calyx by 0.1–0.2 cm; inflorescences solitary or fascicled; stems branched near base; not cultivated 7. *T. violacea*
 - 5b. Filaments appendaged.
 - 7a. Flowers in racemes 4. *T. fordii*
 - 7b. Flowers in fascicles or solitary.
 - 8a. Calyx base truncate or somewhat rounded, wings not decurrent; plants erect 8. *T. cordifolia*
 - 8b. Calyx base neither truncate nor rounded, wings ± decurrent; plants mostly creeping.
 - 9a. Corolla 1.5–2.5 cm, exceeding calyx by 0.4–1 cm; filament appendage 1–2 mm 9. *T. asiatica*
 - 9b. Corolla 2.5–3.9 cm, exceeding calyx by 1.1–2.1 cm; filament appendage 2–4 mm 10. *T. concolor*

1. *Torenia benthamiana* Hance, Ann. Sci. Nat. Bot., sér. 4, 18: 226. 1862.

毛叶蝴蝶草 mao ye hu die cao

Torenia nantoensis Hayata.

Herbs, densely white hirsute, rooting from lower nodes. Branches numerous. Petiole ca. 1 cm; leaf blade ovate to ovate-cordate, 1.5–2.2 × 1–1.8 cm, base cuneate, margin crenate, apex obtuse. Inflorescences axillary, usually 3-flowered fascicles, rarely 1-flowered or racemose and 5-flowered. Pedicel 3 cm in fruit. Calyx slender, 6–9 mm at anthesis, to 1.5 cm in fruit, 5-ribbed, somewhat 2-lipped. Corolla purple-red, pale blue-purple, or whitish, 1.2–1.4 cm; lower lip lobes suborbicular, middle lobe ca. 4 mm and slightly larger than lateral lobes; upper lip oblong, ca. 5 × 4 mm. Anterior stamens appendages 1.5–2 mm. Capsule narrowly ellipsoid, ca. 10 × 2–3 mm. Fl. and fr. Aug–May.

• Mountain slopes in shade, trailsides, along stream; low elevations. S Fujian, Guangdong, Guangxi, Hainan, Taiwan.

2. *Torenia biniflora* T. L. Chin & D. Y. Hong, Fl. Reipubl. Popularis Sin. 67(2): 399. 1979.

二花蝴蝶草 er hua hu die cao

Annuals, sparsely hirtellous. Stems 17–50 cm, simple or branched at base, creeping or ascending, rooting

from lower nodes. Petiole 6–10 mm; leaf blade ovate to narrowly ovate, 2–4 × 1–2.5 cm, base rounded to rarely broadly cuneate, margin coarsely toothed, apex acute to short acuminate. Inflorescences from middle or lower leaf axils, usually dichotomous, sometimes racemose, 2–8-flowered; bracts triangular-subulate to linear, ca. 3 mm, pubescent. Pedicel 5–8 mm, 6–12 mm in fruit, pubescent. Calyx tubular, ca. 1 cm, to 1.2 cm in fruit, 5-winged; wings unequal, 0.5–1 mm wide; lobes 5, narrowly lanceolate, 3–4 mm, apex acuminate. Corolla yellow, rarely white and faintly blue, ca. 1.1 cm. Anterior stamens appendages subclavate, ca. 3 mm. Style apically dilated, 2-lobed, lobes rounded. Capsule ellipsoid, ca. 7 × 3 mm. Fl. and fr. Jul–Oct.

• Dense forests, shady and wet places along trails; below 1000 m. Guangdong, Guangxi, Hainan.

3. *Torenia flava* Buchanan-Hamilton ex Bentham, Scroph. Ind. 38. 1835.

黄花蝴蝶草 huang hua hu die cao

Torenia hokutensis Hayata.

Herbs, erect, 25–40 cm tall, usually branched from base, villous. Petiole ca. 5.8 mm; leaf blade ovate to elliptic, 3–5 × 1–2 cm, abaxially glabrous except for veins,

adaxially pilose, base cuneate and tapering, margin crenate. Racemes terminal, 10–20 cm; bracts oblong-ovate, 5–8 mm, villous, margin ciliate, apex acuminate. Pedicel ca. 5 mm, usually shorter than calyx. Calyx narrowly cylindrical, straight to slightly curved, 5–10 × 2–3 mm, 10–15 × 3–5 mm in fruit, villous, 5-ribbed; veins ciliate; lobes 5, narrowly lanceolate, nearly as long as calyx tube in fruit. Corolla yellow; tube 1–1.2 cm; lower lip lobes suborbicular, subequal; upper lip lobes slightly larger than lower lobes, margin entire or emarginate. Anterior stamens appendages ca. 1 mm. Capsule narrowly ellipsoid. Fl. and fr. Jun–Nov.

Dry meadows, forest margins; below 1000 m. Guangdong, Guangxi, Hainan, Taiwan, S Yunnan [Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Thailand, Vietnam].

4. *Torenia fordii* J. D. Hooker, Bot. Mag. 111: t. 6797B. 1885.

紫斑蝴蝶草 *zi ban hu die cao*

Herbs, 25–40 cm tall, villous. Stems erect, stout. Petiole 1–1.5 cm; leaf blade broadly ovate to ovate-triangular, 3–5 × 2.5–4 cm, white and sparsely hairy, base abruptly constricted and broadly cuneate, margin coarsely triangular acute-serrate. Racemes terminal; bracts oblong-ovate, 5–10 mm, somewhat enveloping pedicel, margin ciliate, apex acuminate. Pedicel ca. 1 cm, to 2 cm in fruit. Calyx obovate-fusiform, ca. 12 × 5–7 mm, ca. 1.8 × 0.8 cm in fruit, 5-winged; wings unequal in width, 2 wider wings to 2 mm; lobes 5, short, more evident in fruit, subequal, ovate-triangular, apex acuminate. Corolla yellow, 1.5–1.8 cm; lower lip lobes rotund, ca. 3 × 3.5 mm, middle lobe apically orange-colored, lateral lobes distally blue; upper lip ca. 4 × 5 mm, emarginate. Anterior stamens appendages toothlike. Capsule cylindrical, 9–11 × 2–3 mm, compressed, 4-furrowed. Fl. and fr. Jul–Oct.

• Mountain slopes, sparse forests, along streams; low elevations. Fujian, Guangdong, Hunan, Jiangxi.

5. *Torenia parviflora* Buchanan-Hamilton ex Bentham, Scroph. Ind. 39. 1835.

小花蝴蝶草 *xiao hua hu die cao*

Herbs, 7–20 cm tall, villous. Stems erect or diffuse, branched from base; branches often decumbent, rooting from nodes. Petiole ca. 5 mm; leaf blade ovate to ovate-lanceolate, 1–2 × 0.8–1.5 cm, glabrous, base broadly cuneate, margin serrate, apex acute. Inflorescences axillary near stem apex, usually 2–5-flowered fascicles. Calyx 6–8 mm in fruit, 5-ribbed. Corolla blue, 0.8–1.2 cm. Anterior stamens with a toothlike appendage. Capsule 5–7 mm. Seeds ca. 0.4 mm. Fr. Oct.

Guangxi [India, Indonesia; tropical Africa and America].

6. *Torenia fournieri* Linden ex Fournier, Ill. Hort. 23: 129. 1876.

藍豬耳 *lan zhu er*

Herbs, 15–50 cm tall. Stems erect, quadrangular, simple or branched above middle, subglabrous. Petiole 1–2 cm; leaf blade oblong-ovate to ovate, 3–5 × 1.5–2.5 cm,

subglabrous, margin coarsely serrate. Racemes often terminal; bracts linear, 2–5 mm. Pedicel 1–2 cm. Calyx ellipsoid, 1.3–1.9 × ca. 0.8 cm, green or purple-red at apex and margin, 5-winged; wings decurrent, ca. 2 mm wide, becoming ca. 3 mm wide in fruit; lips subtriangular, 1.5–1.7 cm, sometimes apically lobed. Corolla 2.5–4 cm, exceeding calyx by 1–2.3 cm; tube pale violet, upper side yellow; lower lip lobes purple-blue, middle lobe with a yellow patch near base, oblong to suborbicular, ca. 10 × 8 mm, subequal; upper lip pale blue, erect, broadly obovate, 1–1.2 × 1.2–1.5 cm, emarginate. Stamens unappendaged. Capsule narrowly ellipsoid ca. 12 × 0.5 mm. Seeds yellow. Fl. and fr. Jun–Dec.

Usually cultivated in S China but sometimes occurring by roadsides or in fields; below 1200 m. Fujian, Guangdong, Guangxi, Taiwan, Yunnan, Zhejiang [Cambodia, Laos, Thailand, Vietnam].

7. *Torenia violacea* (Azaola ex Blanco) Pennell, J. Arnold Arbor. 24: 255. 1943.

紫萼蝴蝶草 *zi e hu die cao*

Mimulus violaceus Azaola ex Blanco, Fl. Filip., ed. 2, 357. 1845; *Torenia exappendiculata* Regel; *T. peduncularis* Bentham ex J. D. Hooker; *T. violacea* var. *chinensis* T. Yamazaki.

Herbs, 8–35 cm tall. Stems erect or somewhat decumbent, branched near base. Leaves decreasing in size upward; petiole 0.5–2 cm; leaf blade ovate to narrowly ovate, 2–4 × 1–2 cm, villous, base cuneate to somewhat truncate, margin shallowly serrate, apex acuminate. Flowers in terminal fascicles or solitary in leaf axils, rarely in racemes. Pedicel ca. 1.5 cm, to 3 cm in fruit. Calyx ± purple-red, oblong-fusiform, 1.3–1.7 cm × 6–8 mm, to 2 × 1 cm in fruit, base rounded and slightly decurrent, 5-winged and wings to 2.5 mm wide; lobes 5. Corolla pale yellow or white, 1.5–2.2 cm, exceeding calyx by 1–2 mm; lower lip lobes with a blue patch, center of middle lobe with an additional yellow patch, ca. 3 × 4 mm, subequal; upper lip suberect, suborbicular, ca. 6 mm in diam. Stamens unappendaged. Capsule 1.1–1.4 cm. Seeds yellow, ca. 0.4 mm. Fl. and fr. Aug–Nov.

Grassland on mountain slopes, forests, along trails; 200–2000 m. Guangdong, Guangxi, Guizhou, Hubei, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [Bhutan, Cambodia, India, Indonesia (Java), Laos, Malaysia, Philippines, Sikkim, Thailand, Vietnam].

8. *Torenia cordifolia* Roxburgh, Pl. Coromandel 2: 52. 1798.

西南蝴蝶草 *xi nan hu die cao*

Annuals, 15–20 cm tall, sparsely white villous. Stems erect, branched from base; branches decussate, ascending, base sparsely diffuse. Petiole 0.8–1.5 cm; leaf blade ovate to cordate, 2.5–3.5 × 1.5–2.5 cm, sparsely villous, base cuneate and ± decurrent, margin coarsely triangular-serrate. Inflorescences 3–5-flowered axillary fascicles; bracts linear, ca. 5 mm. Pedicel 1.5–2 cm, often ascending. Calyx ovate-oblong, ca. 1.3 × 0.7 cm, base truncate to somewhat rounded, never

decurrent, 5-winged; wings subundulate, ca. 2 mm wide, sometimes upper wing ca. 1 mm wide; lips triangular, 5 lobes becoming evident in fruit. Corolla blue-purple, 1.3–2 cm; lower lip lobes subequal; upper lip wider than long, margin somewhat involute, apex entire or emarginate. Anterior stamens appendages toothlike to filiform. Capsule oblong, ca. 9 × 4 mm. Fl. and fr. Sep–Nov.

Mountain slopes, trailsides, wet places near streams; 600–1700 m. Guizhou, Hubei (Xianfeng Xian), Sichuan, Yunnan [Bhutan, Cambodia, India (Darjeeling), Sikkim, Vietnam].

9. *Torenia asiatica* Linnaeus, Sp. Pl. 2: 619. 1753.

光叶蝴蝶草 guang ye hu die cao

Torenia glabra Osbeck.

Herbs, creeping to suberect, rooting from nodes.

Branches numerous, long, slender. Petiole 2–8 mm; leaf blade triangular-ovate, narrowly ovate, or ovate-orbicular, 1.5–3.2 × 1–2 cm, glabrous or sparsely villous, base abruptly constricted and subtruncate to broadly cuneate, margin crenate and serrate. Flowers axillary and solitary or in fascicles. Pedicel 0.5–2 cm. Calyx 0.8–1.5 cm, 1.5–2 cm in fruit, 2-lipped, 5-winged; lips narrowly triangular, apex acuminate, further lobed into 5 small lobes; wings more than 1 mm wide, ± decurrent. Corolla purple-red to blue-red, 1.5–2.5 cm, exceeding calyx by 0.4–1 cm. Anterior stamens appendages linear, 1–2 mm. Capsule 1–1.3 cm. Seeds yellow, ca. 0.4 mm. Fl. and fr. Jun–Sep.

Mountain slopes, trailsides, shady places; below 1700 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangxi, Sichuan, Xizang, Yunnan, Zhejiang [Japan, Vietnam].

We agree with Burt (Rheedea 1: 7. 1991) in that the species treated as *Torenia asiatica* in Fl. Reipubl. Popularis Sin. 67(2): 164. 1979 may in fact be a Himalayan species, *T. cordata* (Griffith) Dutta, and the species that was treated as *T. glabra* is in fact *T. asiatica*.

10. *Torenia concolor* Lindley, Bot. Reg. 32: t. 62. 1846.

单色蝴蝶草 dan se hu die cao

Torenia concolor var. *formosana* T. Yamazaki; *T. radicans* Vaniot; *T. rubens* Benth.

Herbs, creeping. Stems quadrangular, rooting from nodes; branches ascending or erect. Petiole 2–10 mm; leaf blade triangular-ovate, narrowly ovate, or rarely ovate-orbicular, 1–4 × 0.8–2.5 cm, glabrous or sparsely villous, base broadly cuneate to subtruncate, margin serrate or crenate and serrate, apex obtuse to acute. Flowers axillary or terminal, solitary or in fascicles. Pedicel 2–3.5 cm, to 5 cm in fruit. Calyx 1.2–1.7 cm, to 2.3 cm in fruit, base decurrent; wings 5, slightly more than 1 mm wide; lips narrowly triangular with 5 small lobes evident in fruit. Corolla blue to blue-purple, 2.5–3.9 cm, exceeding calyx lobes by 1.1–2.1 cm. Anterior stamens appendages filiform, 2–4 mm. Capsule 1.5–1.8 cm. Fl. and fr. May–Nov.

Forests, mountain valleys, trailsides; below 1500(–2500) m. Guangdong, Guangxi, Guizhou, Hainan, Taiwan, Yunnan [Japan (Ryukyu Islands), Laos, Vietnam].

