

## 2. PATRINIA Jussieu, Ann. Mus. Natl. Hist. Nat. 10: 311. 1807, nom. cons.

败酱属 bai jiang shu

*Fedia* Adanson; *Fuisa* Rafinesque.

Herbs, perennial, less frequently biennial; taprooted or rhizomatous; roots or rhizomes strongly stinking. Stems sometimes lignified at base. Basal leaves rosulate, simple to pinnatifid or pinnatisect, often wilted or caducous at anthesis. Cauline leaves opposite, simple to pinnatifid or pinnatisect, margin serrate or dentate, rarely entire. Inflorescence of corymbiform or paniculiform compound dichasia. Flowers 3–6 mm; calyx limb 5-lobed; lobes sinuous, obtusely dentate, ovate or ovate-deltoid, persistent, rarely enlarged in fruit. Corolla yellow, pale yellow, or white, campanulate or funnelform; tube villous within, gibbous basally, nectary sac with dense glands; limb 5-lobed, lobes slightly unequal. Stamens (1–)4, in unequal pairs, inserted at base of corolla tube, usually exerted; longer filaments villous basally, shorter filaments glabrous; anthers oblong, versatile. Style sometimes curved above; stigma capitate or peltate. Achene ovoid or obovoid-oblong; bracteoles reduced or expanded and winglike, detaching as a unit with fruit, 2- or 3-veined, reticulate veins conspicuous. Seeds compressed ellipsoid.

About 20 species: C and E Asia; 11 species (five endemic) in China.

- 1a. Cauline leaves in whorls of 3 ..... 10. *P. trifoliata*
- 1b. Cauline leaves opposite, decussate.
  - 2a. Bracteoles reduced in fruit; peduncles densely hirsute on upper side only; corolla yellow ..... 6. *P. scabiosifolia*
  - 2b. Bracteoles enlarged and winged in fruit; peduncles uniformly pubescent or hairs in bilateral rows; corolla yellow, pale yellow, or white.
  - 3a. Winged bracteoles 2- or occasionally 3-veined.
    - 4a. Peduncles hispidulous, hairs less than 0.4 mm; cauline leaves usually pinnatifid, rarely entire.
      - 5a. Leaves rigid, leathery, leaf segments obtuse or acute at apex; corolla 6.5–9 mm; bracteoles in fruit 7–9 × 5–7 mm ..... 7. *P. scabra*
      - 5b. Leaves thin, papery, leaf segments acute to acuminate at apex; corolla 3–4.5 mm; bracteoles in fruit 5.5–6.2 × 4.5–5.5 mm ..... 2. *P. heterophylla*
    - 4b. Peduncles hirsute, hairs ca. 1 mm; cauline leaves usually undivided or sometimes with 1–3 pairs of lateral segments.
      - 6a. Corolla white, limb 3.5–5 mm wide; stamens 4 ..... 11. *P. villosa*
      - 6b. Corolla yellow or pale yellow, very rarely white, limb 2–4 mm wide; stamens 1–4 ..... 4. *P. monandra*
  - 3b. Winged bracteoles usually 3-veined, rarely 2-veined or multiveined.
    - 7a. Peduncles scaberulose.
      - 8a. Basal and cauline leaves pinnatisect or bipinnatisect; segments linear ..... 3. *P. intermedia*
      - 8b. Basal leaves usually shallowly lobed or entire; cauline leaves pinnatifid or pinnatisect, segments various in shape ..... 5. *P. rupestris*
    - 7b. Peduncles hirsute.
      - 9a. Plants usually more than 30 cm tall; calyx not obviously enlarged in fruit; leaves glabrous ..... 1. *P. glabrifolia*
      - 9b. Plants dwarf, less than 25 cm tall; calyx obviously enlarged in fruit; leaves usually pubescent.
        - 10a. Rhizomes robust; basal leaves oblanceolate, entire or pinnatifid ..... 8. *P. sibirica*
        - 10b. Rhizomes usually slender; basal leaves oblanceolate-oblong, all pinnatifid ..... 9. *P. speciosa*

1. *Patrinia glabrifolia* Yamamoto & Sasaki, Trans. Nat. Hist. Soc. Formosa 19: 106. 1929.

光叶败酱 guang ye bai jiang

Herbs, perennial, 25–60 cm tall. Rhizomes horizontal, coarse. Stems erect, glabrous, or bilaterally puberulent above. Lower leaves crowded, spatulate or weakly petiolate, glabrous; petiole to 5 cm; blade oblanceolate or oblong, to 25 × 6 cm, base attenuate, margin coarsely serrate, apex acuminate. Cauline leaves petiolate; petiole 1–3.5 cm; blade linear to linear-lanceolate, 4.5–9 × 0.5–1.5 cm, glabrous, base cuneate-decurrent, margin entire or coarsely serrate, apex acuminate. Inflorescence corymbiform-paniculiform; lateral branches in 4–6 pairs, with 2 lines of dense, stiff hairs; pedicels reduced. Calyx lobes inconspicuous. Corolla yellow, ca. 5 mm, regularly 5-lobed; lobes spreading. Stamens 4, exerted. Style ca. 2.5 mm; stigma capitate; fertile ovary locule slightly compressed, ellipsoid,

densely hispidulous or subglabrous below and above margin. Achenes oblong, 2.5–3 mm; bracteoles elliptic or obovate-elliptic, ca. 3 × 1.5 mm, to obovate or orbicular, 3–7 × 2.5–6 mm, 3-veined, apex rounded, sinuate or with 3 rounded lobes. Fl. Jul, fr. Aug.

• Calcareous stony slopes; 1000–2200 m. C and E Taiwan (Hualian, Nantou).

2. *Patrinia heterophylla* Bunge, Enum. Pl. Chin. Bor. 35. 1833.

墓回头 mu hui tou

*Patrinia angustifolia* Hemsley; *P. graveolens* Hance; *P. heterophylla* subsp. *angustifolia* (Hemsley) H. J. Wang.

Herbs, perennial, 15–100 cm tall. Rhizomes horizontal, longer than 20 cm. Stems erect, densely scaberulose or subglabrous. Basal leaves rosulate, petiolate; blade narrowly elliptic,

3–8 cm, pinnatifid to pinnatisect; segments 1–5 pairs, ovate to linear-lanceolate; terminal segment usually larger, ovate to ovate-lanceolate, margin serrate or crenulate. Cauline leaves subsessile or petiolate; lower leaves pinnatisect, with 2–6 pairs of segments; terminal segment ± larger, broadly ovate to linear-lanceolate, 7–9 × 5–6 cm, apex acuminate to long acuminate. Middle and upper leaves often undivided, or with 1 or 2 pairs of segments; terminal segment larger, ovate, ovate-lanceolate, or subrhombic, crenulate. Inflorescence corymbiform; peduncles densely hispidulous; lower involucre bracts with 1 or 2(–4) pairs of linear segments; upper bracts entire, linear, subequal to or longer than inflorescence. Calyx lobes conspicuous or inconspicuous, ovate, ovate-oblong, or ovate-deltoid, 0.1–0.3 mm. Corolla campanulate; tube 1.8–2.4 mm, 1.5–2 mm in diam. distally; lobes ovate or ovate-elliptic, 0.8–1.8 × ca. 1.6 mm. Stamens 4, exerted; longer filaments 3–3.6 mm; shorter filaments 1.9–3 mm; anthers oblong, ca. 1.2 mm. Ovary ovoid or oblong, 0.7–1.5 mm; style slightly curved, 2.3–2.7 mm; stigma peltate or capitate. Achenes oblong or obovoid, hispidulous, or glabrescent on one or both surfaces, apex truncate; bracteoles obovate, obovate-oblong, or obovate-elliptic, rarely elliptic, 5.5–6.2 × 4.5–5.5 mm, 2(or 3)-veined, apex rounded, shallowly 3-lobed, or unequally 2-lobed on one lateral side. Fl. Jul–Sep, fr. Aug–Oct.  $2n = 22^*$ .

• Grassy slopes, open woods, roadsides; 100–2600 m. Anhui, Chongqing, E Gansu (E of Yuzhong), Guizhou (Jiangkou), Hebei, Henan, W Hubei, Hunan, Jiangsu (Tianci Shan), Jiangxi (Lu Shan, Wuning, Xiushui), Jilin (Tongyu), Liaoning (Jianping, Suizhong), S Nei Mongol (Daqing Shan, Xinghe), S Ningxia (Tongxin), E Qinghai (Minhe), Shaanxi, Shandong (Mengshan, Taishan), Shanxi (Jiexiu, Lishi), Sichuan (Emei, Jinchuan, Nanping), Zhejiang (Tianmu Shan).

**3. *Patrinia intermedia*** (Hornemann) Roemer & Schultes, Syst. Veg. 3: 90. 1818.

中败酱 zhong bai jiang

*Fedia intermedia* Hornemann, Hort. Bot. Hafn. 1: 48. 1813.

Herbs, perennial, 10–40(–55) cm tall. Taproot to ca. 20 cm, to ca. 2 cm in diam., fleshy; caudex stout, multiple branched. Stems 10–55 cm tall, scaberulose. Basal leaves rosulate; petiole 1–10 cm; cauline leaves in 2–4 pairs, sessile or shortly petiolate; blade oblong to elliptic, ca. 10 × 5.5 cm, pinnatisect or bipinnatisect; segments suborbicular or linear to linear-lanceolate, scaberulose or glabrescent, apex obtuse or acute; lower segments crenulate, upper segments entire. Inflorescence corymbiform-paniculiform, ca. 12 cm in diam.; lateral branches in 4–6 pairs, hispidulous; involucre bracts similar to upper cauline leaves, subsessile, to 10 cm; upper bracts smaller, pinnatifid or undivided. Calyx crateriform; lobes inconspicuous. Corolla yellow, campanulate; tube ca. 2 mm, ca. 2.2 mm in diam. above; lobes elliptic, oblong, or ovate, 2–3 × 1.5–2.5 mm. Stamens 4; longer filaments 3.3–3.6 mm, shorter filaments 2.5–2.7 mm; anthers oblong, ca. 1.2 mm. Ovary oblong, 1.5–2.5 mm; style ca. 2.5 mm; stigma peltate or capitate, 0.5–0.7 mm in diam. Achenes oblong, 3.5–4.5 mm; pedicel 1–1.5 mm; bracteoles ovate, ovate-oblong, or elliptic-oblong, 6–8.5 × 4.5–5.5 mm, 3-veined. Fl. Jun–Aug, fr. Jul–Sep.  $2n = 22$ .

Forest margins, meadows, steppes, thickets; 1000–3000 m. Xinjiang (Altay, Pamir, Tian Shan) [Kazakhstan, Kyrgyzstan, Mongolia, Russia (Siberia)].

**4. *Patrinia monandra*** C. B. Clarke in J. D. Hooker, Fl. Brit. India 3: 210. 1881.

少蕊败酱 shao rui bai jiang

*Patrinia formosana* Kitamura; *P. monandra* var. *formosana* (Kitamura) H. J. Wang; *P. monandra* var. *sinensis* Batalin; *P. punctiflora* P. S. Hsu & H. J. Wang; *P. punctiflora* var. *robusta* P. S. Hsu & H. J. Wang.

Herbs, perennial or biennial, 1.5–2.2 m tall. Taproots horizontal, oblique, or vertical. Stems slightly lignified at base, robust, uniformly retrorsely hispidulous or with 2 bilateral lines. Basal leaves wilted at anthesis; cauline leaves petiolate; petiole ca. 1 cm, reduced or absent above; blade oblong, 4–14.5 × 2–9.5 cm, sparsely adpressed hispidulous, margin entire, or lyrate with 1 or 2(or 3) pairs of lateral segments, margin crenate or dentate. Inflorescence corymbiform or paniculiform, 20–25 cm in diam.; lateral branches in 4–6 pairs, densely hirsute; involucre bracts linear-lanceolate to lanceolate, ca. 8.5 cm, entire, or pinnately 3–5-segmented; terminal segment ovate-lanceolate, apex acute to acuminate. Calyx small, 5-dentate. Corolla yellow or pale yellow, rarely white, funneliform; tube 1.2–1.8 mm, 1.4–1.8 mm in diam.; limb 2–4 mm wide; lobes ovate to ovate-oblong, 0.6–1.8 × 1–1.2 mm. Stamens 1–4, often one longer and exerted; filaments 1.5–3.3 mm; anthers oblong or ellipsoid, 0.5–0.8 mm. Ovary obovoid, 0.8–1.8 mm; style 1.7–2.8 mm; stigma capitate or peltate. Achenes ovoid-globose; sterile ovary locules thickened, obovoid-oblong, glabrous or sparsely hispidulous; fertile locule compressed ellipsoid, margin hispidulous; bracteoles broadly ovate to suborbicular, 5–7 × 5–8 mm, 2(or 3)-veined, apex usually shallowly 3-lobed. Fl. Aug–Sep, fr. Sep–Oct.  $2n = 88$  (under *P. formosana*).

Grassy slopes, thickets, forests, forest margins, roadsides; 100–3100 m. Anhui, Chongqing, SE Gansu (Tianshui, Wenxian), Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu (Ganyu, Liyang, Yuntai Shan), Jiangxi, Liaoning (Dalian, Huanren), S Shaanxi, Shandong (Zoucheng), Sichuan, Taiwan (Nantou, Taizhong, Taoyuan), Yunnan, Zhejiang (Kaihua, Tiantai Shan, Yinxian) [Bhutan, India (Darjeeling, Sikkim), Nepal].

**5. *Patrinia rupestris*** (Pallas) Dufresne, Hist. Nat. Valér. 54. 1811.

岩败酱 yan bai jiang

*Valeriana rupestris* Pallas, Reise Russ. Reich. 3: 266. 1776.

Herbs, perennial, 20–100 cm tall. Taproot clavate, to ca. 1.5 cm in diam.; caudex slender, simple or several branched. Stems woody at base, covered with persistent old leaf remnants, new growth herbaceous, scaberulose. Basal leaves usually wilted at anthesis, subsessile or petiolate; petiole 2–4 cm; blade obovate-oblong, oblong, ovate, or obovate, 2–7 × 1–2.5 cm, pinnatifid, pinnatifid to pinnatisect, or undivided, margin crenulate; segments linear, oblong-lanceolate, or lanceolate; terminal segment usually crenulate, lobed or segmented. Cauline leaves sessile to shortly petiolate; blade oblong or elliptic, 3–7 cm, pinnatifid to pinnatisect; lateral segments usually in 3–6

pairs, linear or linear-lanceolate to oblong-lanceolate, sparsely crenulate or entire; terminal segment 3-partite, with 3 linear secondary segments. Inflorescence corymbiform, 2.5–20 cm in diam.; lateral branches in 3–7 pairs; lowermost bracts pinnatisect, with 3–5 pairs of linear segments; upper bracts smaller, linear, or with 1 or 2 pairs of filiform-linear segments. Calyx margin truncate, sinuous or shallowly 5-lobed; lobes ovate, 0.1–0.2 mm. Corolla yellow, funnellform-campanulate, 2.5–4 mm; tube 1.8–2 mm, 1.5–2 mm in diam. distally; limb 3–5.5 mm wide; lobes oblong, ovate-elliptic, ovate-oblong, ovate, or ovate-orbicular, 1.2–2 × 1–1.5 mm. Stamens 4; longer filaments 3–4 mm, shorter filaments 2.6–3.5 mm; anthers 0.7–0.8 mm. Ovary columnar, 0.5–1.3 mm, hispidulous, or glabrescent on one or both surfaces; style 2.2–3.3 mm; stigma peltate. Achenes obovoid-columnar, 2.4–2.6 × 1.5–1.8 mm, hispidulous to glabrescent; pedicel 0.5–1 mm; bracteoles oblong, ovate, or obovate, 3.5–5.1 × 3.5–3.6 mm, 3-veined, apex sometimes shallowly 3-lobed. Fl. Jul–Sep, fr. Aug–late Oct.  $2n = 22$ .

Stony slopes, meadows, margins of *Betula* or *Populus* forests; 200–2500 m. Chongqing (Chengkou, Wanyuan), E Gansu (E of Maxian Shan), Hebei (Weichang, Xiaowutai Shan, Zhangbei), E Heilongjiang, Henan (Huixian), E Jilin (Chunhua, Helong, Jilin), Liaoning (Jianping, Qianshan), NE Nei Mongol, Ningxia (Guyuan), Shaanxi (Wuqi, Zhidan), Shanxi (Luya Shan) [Mongolia, Russia (Far East, Siberia)].

**6. *Patrinia scabiosifolia*** Link, Enum. Hort. Berol. Alt. 1: 131. 1821.

败酱 bai jiang

*Fedia scabiosifolia* Treviranus; *F. serratifolia* Treviranus; *Patrinia hispida* Bunge.

Herbs, perennial, 30–100(–200) cm tall. Rhizomes horizontal or oblique. Stems erect, yellow-green to yellow-brown, sometimes pale purplish, glabrate basally, hispidulous apically, hairs in 2 bilateral rows. Basal leaves rosulate, wilted at anthesis; petiole 3–12 cm; blade pale green abaxially, dark green adaxially, ovate, elliptic, or elliptic-lanceolate, 1.8–10.5 × 1.2–3 cm, simple to pinnatifid or pinnatisect, surfaces glabrate or hispidulous on veins, base cuneate, margin ciliate, entire to coarsely serrate, apex obtuse or acute. Cauline leaves sessile, broadly ovate to lanceolate, 5–15 cm, reduced above, both surfaces hispidulous to glabrescent, usually pinnatifid or pinnatisect, lateral segments in 2–5 pairs, terminal segment ovate, elliptic, or elliptic-lanceolate, margin coarsely serrate, apex acuminate. Inflorescence corymbiform, lateral branches in 5–7 pairs; peduncles densely hirsute abaxially; involucre bracts linear, ca. 1 mm. Calyx lobes inconspicuous. Corolla yellow, campanulate; tube ca. 1.5 × 1.5 mm, weakly gibbous; lobes ovate, ca. 1.5 × 1–1.3 mm. Stamens 4, longer filaments ca. 3.5 mm, shorter filaments 2–2.7 mm; anthers oblong, ca. 1 mm. Ovary ellipsoid-oblong, ca. 1.5 mm; style ca. 2.5 mm; stigma peltate, 0.5–0.6 mm in diam. Achenes oblong, 3–4 mm, 3-angular, compressed, sterile locules reduced; bracteoles inconspicuous. Seeds ellipsoid, compressed. Fl. Jul–Sep, fr. Sep–Oct.  $2n = 22$ .

Forests, forest margins, thickets, grassy areas, roadsides; (below 100–)400–2600 m. Throughout China except Guangdong, Hainan, Ningxia, Qinghai, Xinjiang, and Xizang [Japan, Korea, Mongolia, Russia (Far East, Siberia)].

**7. *Patrinia scabra*** Bunge, Pl. Mongholic-Chin. Dec. 1: 20. 1835.

糙叶败酱 cao ye bai jiang

*Patrinia rupestris* Pallas subsp. *scabra* (Bunge) H. J. Wang.

Herbs, perennial, 30–60 cm tall. Taproot columnar, 0.5–2 cm in diam., fleshy; caudex simple or several branched. Stems densely scaberulose. Basal leaves oblanceolate, pinnatifid, with 2–4 pairs of segments, wilted at anthesis. Cauline leaves petiolate; petiole 1–2 cm; blade ovate-lanceolate, 4–10 × 1–2 cm, leathery, scaberulose, pinnatifid to pinnatisect, with 1–5 pairs of lateral segments; terminal segment larger, oblanceolate; lateral segments falcate-linear, entire, apices obtuse or acute. Inflorescence corymbiform; lateral branches 3 or 4, hispidulous; involucre bracts linear, entire or 2- or 3-segmented. Calyx reduced. Corolla yellow, funnellform, gibbous, 6.5–9 mm; limb 5-lobed, 5–7 mm wide. Stamens 4; longer filaments ca. 4 mm, shorter filaments ca. 3 mm. Ovary ca. 1 mm, scabridulous; style ca. 4 mm. Achenes columnar; bracteoles broadly ovate or oblong-orbicular, 7–9 × 5–7 mm, 2-veined, rarely 3-veined, apex rounded, entire or shallowly 3-lobed. Fl. Jul–Aug, fr. Aug–Sep.

• Sunny grassy slopes, forest margins; 300–1700 m. Hebei, W Henan, W Jilin (Baicheng, Zhenlai), W Liaoning (Jianping), SE Nei Mongol (Bairin Youqi, Chifeng, Ongniud Qi), N Shaanxi (Shenmu), Shanxi.

**8. *Patrinia sibirica*** (Linnaeus) Jussieu, Ann. Mus. Natl. Hist. Nat. 10: 312. 1807.

西伯利亚败酱 xi bo li ya bai jiang

*Valeriana sibirica* Linnaeus, Sp. Pl. 1: 34. 1753; *V. ruthenica* Willdenow.

Herbs, perennial, 5–25 cm tall. Taproot clavate, to 1.5 cm in diam. Caudices simple or branching, bark brown or dark brown, usually robust, with fibrous or lamellar remains of old leaf bases. Stems leafless or with a single leaf pair, pubescent, hairs in bilateral rows. Leaves rosulate; petiole 2–5 cm, glabrous or sparsely villous; blade oblong to linear, 2.5–5 × 0.3–2 cm, glabrous, entire or pinnatifid to pinnatisect; segments 2- or 3-paired, linear or linear-lanceolate, apex obtuse-rounded to acuminate; cauline leaves sessile, 1.5–6 cm, pinnatifid. Inflorescence corymbiform, 1.5–4 cm in diam. at anthesis; lateral branches 2–4 pairs; involucre bracts 1–3 cm, pinnatisect; segments sessile, linear; bracts obovate or ovate, ca. 2.4 × 2 mm. Calyx lobes obovate-oblong, oblanceolate, ovate, ovate-deltoid, or oblong, 0.2–1.8 mm. Corolla yellow, funnellform to campanulate; tube 2.5–3.2 mm, 2.5–3.2 mm in diam. distally; lobes ovate or ovate-elliptic, 1.5–2.3 × 1.4–2 mm. Stamens 4; longer filaments ca. 4.5 mm, shorter filaments ca. 4 mm; anthers oblong, ca. 1.5 mm. Ovary ovoid-oblong, 0.5–1.5 mm; style 3.3–3.7 mm; stigma obliquely capitate, ca. 0.6 mm in diam. Achenes narrowly ovoid, 3–4(–6) mm, sterile locules glabrous or hispidulous distally, fertile locule densely hispidulous on margin and proximally; bracteoles obovate, obovate-oblong, ovate, or ovate-oblong, 6–9 × 4.5–6.5 mm, 3- or 4-veined, entire or shallowly 3-lobed. Fl. May–Jun, fr. Jun–Jul.  $2n = 22, 44$ .

Forests, forest margins, meadows, alpine meadows and stony

slopes, stony riverbanks; below 1700 m. Heilongjiang, Nei Mongol [Japan, Mongolia, Russia (from European part to Far East)].

**9. *Patrinia speciosa*** Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 61: 21. 1924.

秀苞败酱 xiu bao bai jiang

Herbs, perennial, 8–30 cm tall. Rhizomes slender. Stems solitary, simple or sometimes branched, leafless or with 1 pair of leaves, sparsely villous. Basal leaves rosulate; petiole 1–2 cm, base sheathing; blade oblong-ob lanceolate or ovate-elliptic, 3–10 × 2–3 cm, slightly glaucous abaxially, glabrous or sparsely villous adaxially, pinnatifid; segments 3–5-pairs, ovate or oblong-lanceolate, base decurrent, margin coarsely serrate, apex acute; terminal lobe larger. Cauline leaves ovate or ovate-oblong to oblong, 3–8 × 1.5–2.5 cm, pinnatifid. Inflorescence corymbiform, 3–10 cm in diam. at anthesis; lateral branches in ca. 3 pairs; peduncles sparsely hirsute; involucre bracts elliptic, oblong, or ovate-oblong to lanceolate, 2–6 × ca. 2 cm, serrate, pinnatifid or pinnatifid, reduced apically; bracts ovate-oblong to obovate, 2.5–3 × 1.4–1.7 mm, apex usually unequally 2-lobed. Calyx lobes ovate-lanceolate, ovate, obovate, or oblanceolate, 0.2–1.6 mm, usually 1 or 2 prominently enlarged in fruit. Corolla yellow, campanulate, 5.5–6 mm; tube ca. 3 mm, 2.6–2.8 mm in diam. distally; lobes elliptic or obovate to ovate, ca. 2.5 × 2.5–3 mm. Stamens 4, exserted; longer filaments ca. 7.5 mm, shorter filaments ca. 6.5 mm; anthers oblong, 1.2–1.4 mm. Achenes ellipsoid or oblong, 3–4 × 2–3 mm; bracteoles irregularly obliquely ovate or obliquely obovate, occasionally 10–12 × 8–13 mm, 3(–5)-veined, apex shallowly 3-lobed, sometimes only one lateral side with 2 lobes. Fl. late Jul–Sep, fr. Sep–Oct.

• Stony, grassy, and/or sandy slopes, thickets; 3100–4100 m. SE Xizang (Bomi, Médog, Zayü), NW Yunnan (Gongshan).

**10. *Patrinia trifoliata*** L. Jin & R. N. Zhao, Acta Bot. Boreal.-Occid. Sin. 22: 667. 2002.

三叶败酱 san ye bai jiang

Herbs, perennial, 30–90 cm tall. Rhizomes horizontal, slightly ascending. Stems erect, scaberulose. Basal leaves rosulate, 3–8 cm, long petiolate, pinnatifid to pinnatisect; segments 1–4-paired, ovate-orbicular; terminal segment usually larger, ovate to ovate-lanceolate; cauline leaves in whorls of 3, pinnatisect; segments 1–4-paired; terminal segment larger, ovate or lanceolate, 3–7 × 1–5 cm, sparsely scaberulose, base cuneate, apex acuminate, margin crenulate; upper cauline leaves subsessile. Inflorescence corymbiform, lateral branches in 3–7 pairs, scaberulose; involucre bracts with 1 or 2 pairs of linear segments. Calyx small, 5-lobed; lobes inconspicuous, 0.1–0.3 mm. Corolla campanulate, 3–5 mm, outside scaberulose, inside glabrous; tube 1.8–3 mm; lobes 5, 0.8–1.5 × ca. 1 mm. Stamens 4, longer filaments ca. 3 mm, shorter filaments ca. 2 mm, glabrous or scaberulose. Ovary obovoid, ca. 1 mm; style 2.3–2.7 mm; stigma truncate-capitate. Achenes oblong; bracteoles ovate, 2-veined, rarely 3-veined, shallowly 3-lobed. Fl. and fr. Jul–Aug.

• Grassy slopes, roadsides; 1100–2300 m. SE Gansu.

**11. *Patrinia villosa*** (Thunberg) Dufresne, Hist. Nat. Valér. 54. 1811.

攀倒甌 pan dao zeng

Herbs, perennial or biennial, 50–120 cm tall, rhizomatous or rarely stoloniferous. Stems with 2 bilateral, hispidulous lines, rarely uniformly hispidulous or glabrescent. Basal leaves rosulate, long petiolate; blade ovate, broadly ovate, or oblong-lanceolate to ovate-lanceolate, 4–25 × 2–18 cm, base decurrent, margin serrate or pinnatifid, with 1 or 2(–4) pairs of segments, apex acuminate. Cauline leaves petiolate; petiole 1–3 cm, upper leaves subsessile; blade similar to basal leaves or rhombic-ovate, hispidulous or glabrescent, base decurrent, margin coarsely serrate, apex caudate-acuminate or acuminate. Inflorescence paniculiform or corymbiform, lateral branches in 5 or 6 pairs, densely hirsute; involucre bracts ovate-lanceolate to linear. Calyx small, hispidulous, sometimes sparsely glandular hairy; limb sinuous; lobes 0.3–0.5 mm. Corolla white, campanulate; tube 1.5–2.6 × 1.7–2.3 mm, deeply 5-lobed; lobes dissimilar in shape, ovate, ovate-oblong, or ovate-elliptic, 0.7–2 × 1.1–1.8 mm. Stamens 4, exserted. Style shorter than stamens. Achenes obovoid; bracteoles obovate, ovate, obovate-oblong, or elliptic, sometimes orbicular, 2.8–6.5 × 2.5–8 mm, hispidulous between 2 main veins, 2(or 3)-veined, base cuneate or rounded, apex rounded, entire or slightly 3-lobed. Fl. Aug–Oct, fr. Sep–Nov.  $2n = 44$ .

Forests, forest margins, thickets, grassy areas, roadsides; below 100–2000 m. Anhui, Chongqing, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, SE Liaoning, Taiwan, Zhejiang [Japan].

- 1a. Leaves without glands; lowest involucre bracts entire ..... 11a. subsp. *villosa*
- 1b. Leaves adaxially with minute brown-red glands; lowest involucre bracts usually with 1 or 2 pairs of segments ..... 11b. subsp. *punctifolia*

**11a. *Patrinia villosa* subsp. *villosa***

攀倒甌(原亚种) pan dao zeng (yuan ya zhong)

*Valeriana villosa* Thunberg in Murray, Syst. Veg., ed. 14, 81. 1784; *Patrinia dielsii* Graebner; *P. ovata* Bunge; *P. sinensis* (H. Léveillé) Koidzumi; *P. villosa* var. *japonica* H. Léveillé; *P. villosa* var. *sinensis* H. Léveillé.

Leaves without glands. Lowermost involucre bracts entire.

Forests, forest margins, thickets, grassy areas; below 100–2000 m. Anhui, Chongqing, Fujian, Guangdong (Liannan, Ruyuan, Yingde), Guangxi, Guizhou, Henan (Shangcheng), Hubei (Enshi, Hefeng), Hunan, Jiangsu (Liyang, Nanjing), Jiangxi, Taiwan, Zhejiang [Japan].

**11b. *Patrinia villosa* subsp. *punctifolia*** H. J. Wang, Acta Phytotax. Sin. 23: 380. 1985.

斑叶败酱 ban ye bai jiang

Leaves with minute brown-red glands adaxially. Lowermost involucre bracts usually with 1 or 2 pairs of segments.

• Grassy slopes, thickets, forest margins, roadsides; below 800 m. SE Liaoning (Benxi, Huanren, Kuandian).

