

18. ELEUTHEROCOCCUS Maximowicz, Mém. Acad. Imp. Sci. St.-Pétersbourg Divers Savans 9 [Prim. Fl. Amur.]: 132. 1859.

五加属 wu jia shu

Acanthopanax (Decaisne & Planchon) Miquel; *Panax* subg. *Acanthopanax* Decaisne & Planchon.

Shrubs, erect or scandent, rarely small trees, hermaphroditic or andromonoecious, glabrous or pubescent, usually prickly, occasionally unarmed. Leaves palmately compound or trifoliolate; stipules absent or very weakly developed. Inflorescence a terminal (rarely axillary) panicle of umbels or a solitary umbel, secondary axes with a terminal umbel of bisexual flowers and 1 to many lateral umbels of later flowering bisexual or functionally male flowers. Pedicels not articulate or only slightly articulate below ovary. Calyx margin entire or with 5 minute teeth. Petals 5, valvate. Stamens 5. Ovary 2–5-carpellate; styles 2–5, free to base, or partially to fully united. Fruit a drupe, laterally compressed or subglobose. Seeds laterally compressed; endosperm smooth.

Nearly 40 species: E Asia, Himalayan region; 18 species (14 endemic) in China.

- 1a. Umbels 1(–3), borne in axils of leaves on short shoots.
 - 2a. Ovary (4 or)5-carpellate, styles united, forming a column; branches with dense bristles along with prickles at base of petiole 1. *E. setulosus*
 - 2b. Ovary 2(or 3)-carpellate, styles free nearly to base; branches with few reflexed prickles or rarely unarmed 2. *E. nodiflorus*
- 1b. Umbels 1 to many, terminal on leafy shoots.
 - 3a. Styles united throughout their entire length, forming a column, stigmas sometimes forming a peltate to slightly recurved disk.
 - 4a. Flowers sessile, arranged in heads 3. *E. sessiliflorus*
 - 4b. Flowers distinctly pedicellate, arranged in umbels.
 - 5a. Leaves near ends of branches sessile or very shortly petiolate, leaflets obovate-oblong to rhombic, 3–6 × 1–2.5 cm, margin entire, apex rounded to obtuse 4. *E. brachypus*
 - 5b. Leaves with a distinct petiole at least 3–7 cm, leaflets variable in shape and size, margin serrate or biserrate, apex variable.
 - 6a. Prickles stout, compressed in cross-section, oriented downward (sometimes lacking on specimens) 5. *E. henryi*
 - 6b. Prickles slender, terete in cross-section, oriented in various directions.
 - 7a. Flowers purple-yellow; branches with slender bristlelike prickles, often present between nodes; petiolule of central leaflet (0.6–)1.2–2 cm 6. *E. senticosus*
 - 7b. Flowers yellow-green; branches with few prickles, generally present only at nodes, sometimes lacking; petiolule of central leaflet 0.3–1 cm.
 - 8a. Leaflets 6–14 × 2.5–6 cm; ovary glabrous 7. *E. leucorrhizus*
 - 8b. Leaflets 4–7 × 1–2.5 cm; ovary pubescent at base when very young 8. *E. baixinensis*
 - 3b. Styles free at least apically, with distinct arms.
 - 9a. Inflorescence verticillate, primary axis with a terminal umbel and almost always 1 to several verticils of flowers, and also often with several flowers borne individually at base 9. *E. verticillatus*
 - 9b. Inflorescence a solitary umbel or panicle of umbels, flowers never arranged in verticils.
 - 10a. Styles free to base or nearly so.
 - 11a. Branches usually pubescent when young and with prickles; peduncles and pedicels pubescent 10. *E. cissifolius*
 - 11b. Branches glabrous and unarmed; peduncles and pedicels glabrous 11. *E. eleutheristylus*
 - 10b. Styles united at least at base.
 - 12a. Ovary (3–)5-carpellate, styles (3–)5; leaflets (3–)5.
 - 13a. Branches with dense bristlelike prickles 12. *E. giraldii*
 - 13b. Branches with slender prickles scattered or only on nodes.
 - 14a. Young branches purple-red; styles united only at base 13. *E. wilsonii*
 - 14b. Young branches brownish; styles united to middle 14. *E. rehderianus*
 - 12b. Ovary 2-carpellate, styles 2; leaflets usually 3.
 - 15a. Calyx and bractlets subtending pedicels white to gray woolly tomentose 15. *E. lasiogyne*
 - 15b. Calyx and bractlets subtending pedicels glabrous.
 - 16a. Branches unarmed; leaflets membranous 16. *E. scandens*
 - 16b. Branches usually with at least some prickles; leaves papery.
 - 17a. Leaflets adaxially glabrous or slightly setose on veins; margins serrulate ... 17. *E. trifoliatus*
 - 17b. Leaflets adaxially ± densely setose on veins; margins setose-biserrulate 18. *E. setosus*

1. *Eleutherococcus setulosus* (Franchet) S. Y. Hu, J. Arnold Arbor. 61: 110. 1980.

细刺五加 *xi ci wu jia*

Acanthopanax setulosus Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 8: 249. 1886 [“*setulosum*”]; *A. zhejiangensis* X. J. Xue & S. T. Fang; *Eleutherococcus pseudosetulosus* C. H. Kim & B. Y. Sun; *E. zhejiangensis* (X. J. Xue & S. T. Fang) H. Ohashi.

Shrubs, to 5 m tall. Branches slender, forming both long and short shoots, with sparse to dense red-brown or dark brown bristles or sparsely so, rarely a single prickle at nodes. Petiole 3–10 cm, slender, with prickles at base; petiolules very short; leaflets 5, obovate or oblong-obovate, 2–5 × 0.8–2 cm, papery, abaxially subglabrous, adaxially with scattered bristles on mid-vein and veins, secondary veins 3 or 4 pairs, conspicuous, base cuneate, margin serrulate above middle, apex acute. Inflorescence borne in axils of leaves on short shoots, a simple umbel of sometimes 2 or 3 umbels clustered together; peduncles 2–3 cm, densely bristly, then glabrous; pedicels 5–10 mm, slender, glabrous. Calyx with 5 teeth, glabrous. Ovary (4 or)5-carpellate; styles united, forming a column. Fruit black at maturity, globose, ca. 5 mm in diam. Fl. Jul, fr. Sep.

• Scrub fields, forests, roadsides, stream banks; below 800 m in E and 2000 m in W part of range. S Anhui, Gansu, Sichuan, W Zhejiang.

This species is used medicinally.

2. *Eleutherococcus nodiflorus* (Dunn) S. Y. Hu, J. Arnold Arbor. 61: 109. 1980.

细柱五加 *xi zhu wu jia*

Acanthopanax nodiflorus Dunn, J. Bot. 47: 199. 1909; *A. gracilistylus* W. W. Smith; *A. gracilistylus* var. *major* G. Hoo; *A. gracilistylus* var. *nodiflorus* (Dunn) H. L. Li; *A. gracilistylus* var. *pubescens* (Pampanini) H. L. Li; *A. gracilistylus* var. *trifoliolatus* C. B. Shang; *A. gracilistylus* var. *villosulus* (Harms) H. L. Li; *A. hondae* Matsuda; *A. spinosus* (Linnaeus f.) Miquel var. *pubescens* Pampanini; *A. villosulus* Harms; *Aralia palmata* Loureiro (1790), not Lamack (1783); *A. scandens* Poiret; *Eleutherococcus gracilistylus* (W. W. Smith) S. Y. Hu; *E. gracilistylus* var. *major* (G. Hoo) H. Ohashi; *E. gracilistylus* var. *nodiflorus* (Dunn) H. Ohashi; *E. gracilistylus* var. *pubescens* (Pampanini) S. Y. Hu; *E. gracilistylus* var. *trifoliolatus* (C. B. Shang) H. Ohashi; *E. gracilistylus* var. *villosulus* (Harms) Q. S. Wang; *E. nodiflorus* (Dunn) S. Y. Hu; *E. pubescens* (Pampanini) C. H. Kim & B. Y. Sun; *E. villosulus* (Harms) S. Y. Hu; *Hedera scandens* (Poiret) Candolle.

Shrubs, to 3 m tall, sometimes climbers. Branches slender, forming both long and short shoots, slightly pendulous, glabrous, with few, scattered, reflexed, short prickles at nodes, rarely unarmed. Petiole 3–8 cm, glabrous, with small scattered prickles; petiolules very short; leaflets (3–)5, obovate or oblanceolate, 3–8 × 1–3.5 cm, submembranous to papery, both surfaces glabrous or sparsely setulose, abaxially sometimes pubescent or with brown or ferruginous tufted hairs in axils of veins, secondary veins 4 or 5 pairs, subconspicuous, base cuneate, margin crenate-serrulate, apex acute or shortly acuminate. Inflorescence borne in axils of leaves on short shoots, a solitary umbel or sometimes 2 or 3 umbels together; peduncles 1–4 cm;

pedicels 6–10 mm, slender, glabrous. Calyx subentire or with 5 minute teeth. Corolla yellowish green. Ovary 2(or 3)-carpellate; styles free nearly to base, ca. 2 mm, slender. Fruit black at maturity, subglobose, ca. 6 mm in diam.; styles persistent, reflexed, 2–3 mm. Fl. Apr–Jul, fr. Jun–Oct.

• Forest margins, scrub fields, mountain slopes, valleys, stream banks, roadsides; below 1000 m in E and 3000 m in W part of range. S Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, S Jiangsu, Jiangxi, Shaanxi, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang.

This species is a famous medicinal plant.

3. *Eleutherococcus sessiliflorus* (Ruprecht & Maximowicz) S. Y. Hu, J. Arnold Arbor. 61: 109. 1980.

无梗五加 *wu geng wu jia*

Panax sessiliflorus Ruprecht & Maximowicz, Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg 15: 133. 1856 [“*sessiliflorum*”]; *Acanthopanax sessiliflorus* (Ruprecht & Maximowicz) Seemann; *A. sessiliflorus* var. *parviceps* Rehder; *Eleutherococcus sessiliflorus* var. *parviceps* (Rehder) S. Y. Hu.

Trees, small, to 5 m tall. Branches unarmed or with scattered, erect or recurved prickles. Petiole 3–12 cm, unarmed or with small prickles; petiolules 2–10 mm; leaflets 3–5, obovate, oblong-obovate, or oblong-lanceolate, 8–18 × 3–7 cm, papery, secondary veins 5–7 pairs, distinct, adaxially glabrous or slightly scabrous, base cuneate, margin irregularly serrate, apex acuminate. Inflorescence terminal, a raceme of umbels, borne on leafy shoots, with 3–6 capitate umbels; peduncles 0.5–3 cm, densely pubescent; pedicels absent (flowers sessile). Calyx with 5 teeth, white pubescent. Corolla dull purplish. Ovary 2-carpellate; styles united basally into a column, free apically. Fruit obovoid-globose, 1–1.5 cm; styles persistent, ca. 3 mm. Fl. Aug–Sep, fr. Sep–Nov.

Scrub fields and forests on mountain slopes; 200–1000 m. Hebei, Heilongjiang, Jilin, Liaoning, Shanxi [Korea].

This species is used medicinally.

Two varieties (*Eleutherococcus sessiliflorus* var. *sessiliflorus* and var. *parviceps*) have sometimes been distinguished on the basis of minor differences in leaf shape and fruit size, but they do not appear to be worthy of recognition.

4. *Eleutherococcus brachypus* (Harms) Nakai, Fl. Sylv. Kor. 16: 27. 1927.

短柄五加 *duan bing wu jia*

Acanthopanax brachypus Harms, Bot. Jahrb. Syst. 36 (Beibl. 82): 80. 1905; *A. obovatus* G. Hoo; *Eleutherococcus brachypus* var. *omeiensis* C. H. Kim & B. Y. Sun; *E. obovatus* (G. Hoo) H. Ohashi.

Shrubs, to ca. 2 m tall. Branches with few, short, recurved prickles at nodes, rarely unarmed. Petioles to 7 cm at bases of branches, gradually shorter apically; leaves nearly sessile toward apices of branches; petiolules very short, glabrous; leaflets 3–5, obovate-oblong to rhombic, 3–6 × 1–2.5 cm, papery, both surfaces glabrous, secondary veins 3–5 pairs, base cuneate, margin entire or rarely with few teeth apically, apex rounded to obtuse. Inflorescence terminal, a simple or compound umbel, borne on

leafy shoots, with 1–4 umbels; peduncles ca. 2 cm; pedicels 1–1.5 cm, glabrous. Calyx with 5 teeth, glabrous, rarely slightly pubescent. Corolla greenish. Ovary 5-carpellate; styles united into a column. Fruit subglobose, ca. 5 mm; styles persistent, ca. 2 cm. Fl. Jul–Aug, fr. Sep–Oct.

• Scrub fields, roadsides on mountain slopes; 1000–2000 m. Gansu, Ningxia, Shaanxi.

5. *Eleutherococcus henryi* Oliver, Hooker’s Icon. Pl. 18: t. 1711. 1887.

糙叶五加 *cao ye wu jia*

Shrubs, to 3 m tall. Branches densely and roughly pubescent when young, soon glabrescent, with scattered, stout prickles, compressed in cross-section, oriented downward (sometimes lacking on pressed specimens). Petiole 4–7 cm, densely hirsute; petiolules 3–6 mm or leaflets sessile; leaflets (3–)5, elliptic or oblanceolate, 6–12 × 3–5 cm, papery, abaxially pubescent on veins, adaxially ± scabrous-pubescent, secondary veins 6–8 pairs, conspicuous, base narrowly cuneate, margin serrate apically, apex acute or acuminate. Inflorescence terminal, a panicle of umbels, borne on leafy shoots, with several umbels, glabrous or slightly pubescent; peduncles 1.5–3.5 cm; pedicels 0.7–1.5 cm. Calyx with 5 teeth, glabrous or slightly pubescent. Ovary 2–5-carpellate; styles united into a column. Fruit black at maturity, ellipsoid-globose, ca. 8 mm; styles persistent, ca. 2 cm, slender. Fl. Jul–Sep, fr. Sep–Oct.

• Scrub fields, forests, forest margins, roadsides, mountain slopes; 800–3200 m. Anhui, Henan, Hubei, Jiangxi, Shaanxi, Shanxi, Sichuan, Zhejiang.

- 1a. Leaflets abaxially ± pubescent, especially on secondary veins; umbels 2–3 cm in diam.; pedicels glabrous or sparsely pubescent 3a. var. *henryi*
- 1b. Leaflets abaxially glabrous or glabrescent; umbels 1–2 cm in diam.; pedicels densely pubescent 3b. var. *faberi*

5a. *Eleutherococcus henryi* var. *henryi*

糙叶五加(原变种) *cao ye wu jia (yuan bian zhong)*

Acanthopanax henryi (Oliver) Harms.

Leaflets abaxially ± pubescent, especially on secondary veins. Umbels 2–3 cm in diam. Pedicels glabrous or sparsely pubescent.

• Scrub fields, forest margins, roadsides, mountain slopes; 800–3200 m. Anhui, Henan, Hubei, Jiangxi, Shaanxi, Shanxi, Sichuan, Zhejiang.

5b. *Eleutherococcus henryi* var. *faberi* (Harms) S. Y. Hu, J. Arnold Arbor. 61: 109. 1980.

毛梗糙叶五加 *mao geng cao ye wu jia*

Acanthopanax henryi var. *faberi* Harms, Mitt. Deutsch. Dendrol. Ges., ed. 2, 27: 12. 1918; *A. connatistylus* S. C. Li & X. M. Liu; *Eleutherococcus connatistylus* (S. C. Li & X. M. Liu) C. H. Kim & B. Y. Sun; *E. huangshanensis* C. H. Kim & B. Y. Sun.

Leaflets abaxially glabrous or glabrescent. Umbels 1–2 cm

in diam. Pedicels densely pubescent.

• Scrub fields, forests; 1200–1700 m. S Anhui (Huang Shan), S Shaanxi (Zhongnan Shan), NW Zhejiang (Tianmu Shan).

The name *Eleutherococcus divaricatus* (Siebold & Zuccarini) S. Y. Hu (*Panax divaricatus* Siebold & Zuccarini; *Acanthopanax divaricatus* (Siebold & Zuccarini) Seemann; *Kalopanax divaricatus* (Siebold & Zuccarini) Miquel) has been misapplied to this taxon. In addition, in FRPS (54: 96. 1978), the name *A. sieboldianus* Makino (*E. sieboldianus* (Makino) Koidzumi, a Japanese species) was misapplied to plants from Anhui that in fact belong to *E. henryi* var. *faberi*.

6. *Eleutherococcus senticosus* (Ruprecht & Maximowicz) Maximowicz, Mém. Acad. Imp. Sci. St.-Petersbourg Divers Savans 9 [Prim. Fl. Amur.]: 132. 1859.

刺五加 *ci wu jia*

Hedera senticosa Ruprecht & Maximowicz, Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg 15: 134. 1856; *Acanthopanax cuspidatus* var. *tienchuanensis* G. Hoo; *A. senticosus* (Ruprecht & Maximowicz) Harms; *A. senticosus* var. *brevistamineus* S. F. Gu; *A. senticosus* f. *subinermis* (Regel) H. L. Li; *A. senticosus* var. *subinermis* (Regel) M. Kitagawa; *Eleutherococcus senticosus* f. *inermis* Komarov; *E. senticosus* var. *subinermis* Regel.

Shrubs, to 6 m tall. Branches with dense to scattered, slender, terete, bristlelike prickles. Petiole 3–12 cm, slender, sometimes with fine prickles; petiolule of central leaflet (0.6–)1.2–2 cm, usually brownish pubescent; leaflets (3–)5, elliptic-obovate or oblong, 5–13 × 3–7 cm, papery, abaxially pubescent on veins, adaxially with scattered hairs, secondary veins 6 or 7 pairs, conspicuous on both surfaces, base broadly cuneate, margin sharply biserrate, apex shortly acuminate or acuminate. Inflorescence terminal, a solitary or compound umbel, borne on leafy shoots, usually with 2–6 umbels together; peduncles 5–7 cm, glabrous; pedicels 1–2 cm, glabrous or slightly pubescent at base. Calyx subentire or with 5 inconspicuous teeth, glabrous. Corolla purple-yellow. Ovary 5-carpellate; styles united into a column. Fruit ovoid-globose, ca. 8 mm; styles persistent, ca. 1.5 mm. Fl. Jun–Jul, fr. Aug–Oct.

Scrub fields, forests, roadsides, valleys; below 2000 m. Hebei, Heilongjiang, Henan, Jilin, Liaoning, N Shaanxi, Shanxi, Sichuan [Japan, Korea, Russia].

This species is used medicinally.

7. *Eleutherococcus leucorrhizus* Oliver, Hooker’s Icon. Pl. 18: t. 1711. 1887.

藤五加 *teng wu jia*

Shrubs, to 4 m tall, sometimes climbers. Branches glabrous, with few, slender, terete prickles generally at nodes. Petiole 3–10 cm; petiolule of central leaflet 3–6 mm; leaflets (3–)5, oblong, oblanceolate, or lanceolate, rarely obovate, 6–14 × 2.5–6 cm, papery, both surfaces glabrous (rarely abaxially pubescent when young, glabrescent), secondary veins 6–10 pairs, base cuneate, margin sharply biserrate, apex acuminate or long acuminate. Inflorescence terminal, a corymbose panicle of umbels or a solitary umbel, borne on leafy shoots; peduncles 0.6–10 cm; pedicels 1–2 cm, glabrous. Calyx with 5 teeth, glabrous. Corolla yellowish green. Ovary 5-carpellate, glabrous; styles united

into a column. Fruit ovoid-globose, 5–7 mm in diam.; styles persistent, 1–1.2 cm. Fl. Jun–Aug, fr. Aug–Nov.

• Scrub fields, forests, forest margins in valleys; 100–3200 m. Anhui, Gansu, Guangdong, Guizhou, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang [?Bhutan].

This species is used medicinally.

- 1a. Leaflets 3(–)5, both surfaces glabrous, abaxially glaucous or glaucescent ... 7d. var. *setchuenensis*
- 1b. Leaflets (3–)5, adaxially scabrous, abaxially pubescent, not glaucous.
 - 2a. Leaflets abaxially pubescent when young, both surfaces soon glabrous 7a. var. *leucorrhizus*
 - 2b. Leaflets abaxially yellow pubescent on veins, adaxially scabrous or scabridulous.
 - 3a. Petiolule and midvein of blade with fine prickles 7b. var. *scaberulus*
 - 3b. Petiolule and midvein of blade densely yellow pubescent, without fine prickles 7c. var. *fulvescens*

7a. Eleutherococcus leucorrhizus var. leucorrhizus

藤五加(原变种) teng wu jia (yuan bian zhong)

Acanthopanax cuspidatus G. Hoo; *A. leucorrhizus* (Oliver) Harms; *A. leucorrhizus* f. *angustifolius* G. Hoo; *A. leucorrhizus* var. *axillaritomentosus* G. Hoo; *Eleutherococcus cuspidatus* (G. Hoo) H. Ohashi; *E. leucorrhizus* var. *axillaritomentosus* (G. Hoo) H. Ohashi; *E. leucorrhizus* var. *brevipedunculatus* Y. R. Ling.

Leaflets (3–)5, abaxially pubescent when young, both surfaces soon glabrous.

• Scrub fields, forest margins in valleys; 100–3200 m. Anhui, Gansu, Guangdong, Guizhou, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.

7b. Eleutherococcus leucorrhizus var. scaberulus (Harms & Rehder) Nakai, Fl. Sylv. Kor. 16: 29. 1927.

狭叶藤五加 xia ye teng wu jia

Acanthopanax leucorrhizus var. *scaberulus* Harms & Rehder in Sargent, Pl. Wilson. 2: 558. 1916; *A. simonii* Simon-Louis ex Mouillefert; *A. simonii* var. *longipedicellatus* G. Hoo; *Eleutherococcus simonii* (Simon-Louis ex Mouillefert) Hesse; *E. simonii* var. *longipedicellatus* (G. Hoo) H. Ohashi.

Leaflets (3–)5, adaxially scabrous, abaxially yellow pubescent on veins; petiolule and midvein of blade with fine prickles.

• Scrub fields on mountain slopes; 1000–3000 m. Anhui, N Guangdong, Guizhou, W Henan, Hubei, Hunan, Jiangxi, Sichuan, Yunnan, Zhejiang.

7c. Eleutherococcus leucorrhizus var. fulvescens (Harms & Rehder) Nakai, Fl. Sylv. Kor. 16: 27. 1927.

糙叶藤五加 cao ye teng wu jia

Acanthopanax leucorrhizus var. *fulvescens* Harms & Rehder in Sargent, Pl. Wilson. 2: 558. 1916; *A. longipes* Handel-Mazzetti.

Leaflets (3–)5, adaxially ± scabridulous, petiolule and midvein of blade densely yellow pubescent, without fine prickles.

• Forests, scrub fields; 1000–3100 m. N Guangdong, Guizhou, W Henan, Hubei, Hunan, Jiangxi, Sichuan, Yunnan.

7d. Eleutherococcus leucorrhizus var. setchuenensis (Harms) C. B. Shang & J. Y. Huang, **comb. nov.**

蜀五加 shu wu jia

Basionym: *Acanthopanax setchuenensis* Harms, Bot. Jahrb. Syst. 29: 488. 1900; *A. setchuenensis* var. *latifolius* G. Hoo; *Eleutherococcus setchuenensis* (Harms) Nakai; *E. setchuenensis* var. *latifolius* (G. Hoo) H. Ohashi.

Leaflets usually 3, rarely 4 or 5, both surfaces glabrous, abaxially glaucous or glaucescent, margin entire or sparsely and irregularly serrate.

• Scrub fields; 1000–3200 m. Gansu, Guizhou, Henan, Hubei, Shaanxi, Sichuan.

8. Eleutherococcus baoxinensis (X. P. Fang & C. K. Hsieh) P. S. Hsu & S. L. Pan, Sida 15: 594. 1993.

宝兴五加 bao xing wu jia

Acanthopanax baoxinensis X. P. Fang & C. K. Hsieh, Bull. Bot. Res., Harbin 7(4): 89. 1987.

Shrubs, to 2 m tall. Branches glabrous or sometimes brown hirsute when young, with sparse, slender, terete, needle-like prickles at nodes. Petiole 3–10 cm; petiolules 1–5 mm, brown pubescent or setose; leaflets (3–)5, narrowly oblong or lanceolate, 4–7 × 1–2.5 cm, membranous, both surfaces brown pubescent or setose, secondary veins 6–10 pairs, abaxially conspicuous, base rounded or acute, margin setose-serrate or setose-biserrate, apex acuminate or abruptly so. Inflorescence terminal, a small panicle of umbels, borne on leafy shoots, glabrous; peduncles 1.5–7 cm; pedicels 4–10 mm, slender. Calyx of 5 teeth, glabrous. Corolla yellow-green. Ovary (4 or)5-carpellate, sparsely pubescent at base when young; styles united into a column, 0.5–1 mm. Fruit ovoid-globose; styles persistent, 1–1.5 mm. Fl. Jul–Aug, fr. Sep–Oct.

• Shaded slopes in dense forests; ca. 2200 m. Sichuan (Baoping).

9. Eleutherococcus verticillatus (G. Hoo) H. Ohashi, J. Jap. Bot. 62: 360. 1987.

轮伞五加 lun san wu jia

Acanthopanax verticillatus G. Hoo, Acta Phytotax. Sin., Addit. 1: 159. 1965; *A. xizangensis* Y. R. Li; *Eleutherococcus xizangensis* (Y. R. Li) H. Ohashi.

Shrubs. Branches purple, with recurved prickles 1.5–3 mm, base decurrent. Petiole 3–12 cm, with small prickles, glabrous; petiolules 1–10 mm; leaflets 3–5, obovate or broadly elliptic, 7–11.5 × 3.5–5 cm, secondary veins 6–8 pairs, distinct, base cuneate or broadly so, margin irregularly biserrate, teeth awned, apex acute, shortly acuminate, or caudate. Inflorescence

terminal, a raceme of umbels, borne on leafy shoots, with a terminal umbel and almost always 1 to several verticals of flowers, and also often with several flowers borne individually at base; pedicels 1–1.5 cm, pubescent. Calyx with 5 teeth. Ovary (3–)5-carpellate; styles free. Fruit globose, ca. 5 mm in diam.; styles persistent, free portions recurved. Fl. Jul, fr. Aug.

- Shaded and wet forests; 2900–3200 m. SE Xizang.

This species is used medicinally.

10. *Eleutherococcus cissifolius* (Griffith ex C. B. Clarke) Nakai, Chosen-shokubutsu 1: 420. 1914.

乌莓五加 wu lian mei wu jia

Aralia cissifolia Griffith ex C. B. Clarke in J. D. Hooker, Fl. Brit. India 2: 722. 1879; *Acanthopanax cissifolius* (Griffith ex C. B. Clarke) Harms; *A. cissifolius* var. *glaber* Y. R. Li; *Eleutherococcus cissifolius* var. *glaber* (Y. R. Li) P. S. Hsu & S. L. Pan.

Shrubs, to ca. 3 m tall. Branches usually pubescent when young, unarmed or with scattered short prickles. Petiole 4–12 cm, sometimes prickly, pubescent when young; petiolules 2–5 mm; leaflets (3–)5, oblong, oblanceolate, or ovate-lanceolate, 3–8 × 1.5–2.5 cm, papery, abaxially pubescent when young, later glabrescent, adaxially glabrous or scattered hispid, base attenuate, margin serrate or biserrate, apex acuminate. Inflorescence terminal, a simple or compound umbel, borne on leafy shoots; umbels 1 to several, densely pubescent when young; peduncles 3–12 cm; pedicels 0.8–1.5 cm. Calyx entire, glabrous. Corolla yellowish green. Ovary 3–5-carpellate; styles free to base or nearly so. Fruit globose, 6–8 mm in diam.; styles persistent, ca. 2 mm. Fl. Jul, fr. Oct.

Scrub fields; 2500–3600 m. Xizang, Yunnan [Bhutan, India (Sikkim), Nepal].

11. *Eleutherococcus eleutheristylus* (G. Hoo) H. Ohashi, J. Jap. Bot. 62: 358. 1987.

离柱五加 li zhu wu jia

Acanthopanax eleutheristylus G. Hoo, Acta Phytotax. Sin., Addit. 1: 155. 1965; *A. eleutheristylus* var. *simplex* G. Hoo; *Eleutherococcus eleutheristylus* var. *simplex* (G. Hoo) H. Ohashi.

Shrubs. Branches dark purple, glabrous, unarmed. Petiole 1.5–10 cm; petiolules 3–5 mm, glabrous; leaflets elliptic or oblong-elliptic, lateral ones rhombic-elliptic, 3–8 × 1.5–3 cm, papery, both surfaces glabrous, secondary veins 6–8 pairs, distinct, tertiary veins raised abaxially, impressed adaxially, base rounded or narrowly cuneate, margin serrate or biserrulate, apex acuminate or caudate. Inflorescence terminal, a solitary umbel, borne on leafy shoots, glabrous; peduncles 2.5–4 cm, glabrous; pedicels 8–12 mm, glabrous. Calyx of 5 teeth. Corolla not seen. Ovary 5-carpellate; styles free nearly to base. Fruit ovoid-globose, 7–8 mm; styles persistent, reflexed. Fr. Jul.

- Scrub fields on mountain slopes. Gansu, Shaanxi (Hua Shan).

12. *Eleutherococcus giraldii* (Harms) Nakai, J. Arnold Arbor. 5: 9. 1924.

红毛五加 hong mao wu jia

Acanthopanax giraldii Harms, Bot. Jahrb. Syst. 36(Beibl. 82): 80. 1905; *A. giraldii* var. *hispidus* G. Hoo; *A. giraldii* var. *inermis* Harms & Rehder; *A. humillimus* Y. S. Lian & Xue L. Chen; *A. yui* H. L. Li; *A. yui* var. *longipedunculatus* G. Hoo; *A. yui* var. *parvispinosus* G. Hoo; *A. yui* var. *villosus* Y. R. Li; *Eleutherococcus giraldii* f. *hispidus* (G. Hoo) H. Ohashi; *E. giraldii* var. *hispidus* (G. Hoo) Q. S. Wang; *E. giraldii* var. *inermis* (Harms & Rehder) Nakai; *E. giraldii* var. *villosus* (Y. R. Li) P. S. Hsu & S. L. Pan; *E. humillimus* (Y. S. Lian & Xue L. Chen) Y. F. Deng; *E. yui* (H. L. Li) S. Y. Hu.

Shrubs, to ca. 3 m tall. Branches brownish, with dense bristlelike spreading or reflexed prickles, rarely unarmed. Petiole 3–7 cm, glabrous, rarely prickly; petiolules short; leaflets (3–)5, obovate-oblong, rarely ovate, 2.5–8 × 1.5–3 cm, abaxially pubescent, adaxially glabrous or scattered hispid, secondary veins ca. 5 pairs, inconspicuous, base cuneate, margin irregularly biserrate, apex acute or shortly acuminate. Inflorescence terminal, a solitary umbel, borne on leafy shoots; peduncles 0.5–1(–2) cm, stout; pedicels 0.5–1.5 cm, glabrous or pubescent when young. Calyx subtire, glabrous. Corolla white. Ovary 5-carpellate; styles united for 1/5–1/2 their length. Fruit black at maturity, globose, ca. 8 mm. Fl. Jun–Jul, fr. Sep–Oct.

- Scrub fields on mountain slopes; 1300–3500 m. Gansu, Henan, Hubei, Ningxia, Qinghai, Sichuan, Shaanxi, Yunnan.

Deng (Novon 13: 305–306. 2003) separated *Eleutherococcus humillimus* from *E. giraldii* on account of the former being a subshrub, only 5–15 cm tall (vs. 1–3 m), with 3 or 4(or 5) carpels and styles (vs. 5), and styles connate for ca. 1/5 their length (vs. 1/4–1/2 their length). Deng recorded *E. humillimus* from high elevations (2700–3000) in S Gansu and N Sichuan and noted that it might be an alpine vicariant of *E. giraldii*.

13. *Eleutherococcus wilsonii* (Harms) Nakai, J. Arnold Arbor. 5: 9. 1924.

狭叶五加 xia ye wu jia

Shrubs, to 5 m tall. Branches purple-red, glabrous or slightly pubescent, with slender recurved prickles on nodes. Petiole 0.5–6 cm, glabrous; petiolules very short; leaflets 3–5, oblong-lanceolate or oblanceolate, 4–5.5 × 0.5–1.6 cm, papery, abaxially glabrous or pilose, adaxially glabrous or with sparse fine bristles, secondary veins 4–8 pairs, inconspicuous, base attenuate, margin crenate-serrate, or serrulate or biserrulate, apex acute or shortly acuminate. Inflorescence terminal, a solitary umbel, borne on leafy shoots; peduncles 1.5–5 cm; pedicels 1–1.7 cm, glabrous. Calyx subtire or with 5 teeth, glabrous. Corolla yellowish green. Ovary (3–)5-carpellate; styles united at base. Fruit subglobose, 6–7 mm; styles persistent, ca. 1.5 cm. Fl. Jun–Jul, fr. Sep–Oct.

- Scrub fields, forests; 2400–3600 m. Gansu, W Hubei, Qinghai, S Shaanxi, Sichuan, Xizang, Yunnan.

- 1a. Leaflet margin crenate-serrulate, abaxially glabrous 13a. var. *wilsonii*
- 1b. Leaflet margin serrulate or biserrulate, abaxially sparsely or densely pilose 13b. var. *pilosulus*

13a. *Eleutherococcus wilsonii* var. *wilsonii*

狭叶五加(原变种) xia ye wu jia (yuan bian zhong)

Acanthopanax wilsonii Harms in Sargent, Pl. Wilson. 2: 560. 1916; *A. nanpingensis* X. P. Fang & C. K. Hsieh; *A. stenophyllus* Harms; *A. stenophyllus* f. *angustissimus* Rehder; *A. stenophyllus* f. *dilatatus* Rehder; *Eleutherococcus nanpingensis* (X. P. Fang & C. K. Hsieh) P. S. Hsu & S. L. Pan; *E. stenophyllus* (Harms) Nakai; *E. stenophyllus* f. *angustissimus* (Rehder) S. Y. Hu; *E. stenophyllus* f. *dilatatus* (Rehder) S. Y. Hu.

Leaflets glabrous abaxially, margin crenate-serrulate.

• Scrub fields, forests; 2500–3600 m. S Gansu, W Hubei, S Shaanxi, Sichuan, Xizang, Yunnan.

13b. *Eleutherococcus wilsonii* var. *pilosulus* (Rehder) P. S. Hsu & S. L. Pan, Sida 15: 594. 1993.

毛狭叶五加 mao xia ye wu jia

Acanthopanax giraldii Harms var. *pilosulus* Rehder, J. Arnold Arbor. 9: 99. 1928; *A. wilsonii* var. *pilosulus* (Rehder) X. P. Fang & C. K. Hsieh; *Eleutherococcus giraldii* var. *pilosulus* (Rehder) S. Y. Hu; *E. pilosulus* (Rehder) C. H. Kim & B. Y. Sun; *E. wilsonii* var. *pilosulus* (Rehder) P. S. Hsu & S. L. Pan.

Leaflets sparsely or densely pilose abaxially, margin serrulate or biserrulate.

• Scrub fields; 2400–2900 m. Gansu, Qinghai.

14. *Eleutherococcus rehderianus* (Harms) Nakai, J. Arnold Arbor. 5: 9. 1924.

匙叶五加 chi ye wu jia

Acanthopanax rehderianus Harms in Sargent, Pl. Wilson. 2: 516. 1916; *A. rehderianus* var. *longipedunculatus* G. Hoo; *Eleutherococcus rehderianus* var. *longipedunculatus* (G. Hoo) H. Ohashi.

Shrubs, to ca. 3 m tall. Branches brownish, pubescent when young, with scattered recurved prickles. Petiole 2–7 cm, sometimes with a prickle at base; petiolules very short; leaflets (3–)5, oblong or oblanceolate, 2–8 × 0.8–3 cm, papery, both surfaces glabrous, secondary veins 5 or 6 pairs, base gradually narrowed, margin entire or apically crenate-serrate, apex acute to shortly acuminate. Inflorescence terminal, a solitary umbel, borne on leafy shoots; peduncles 1–2 cm; pedicels ca. 1 cm, glabrous. Calyx subtentire, glabrous. Ovary (4 or)5-carpellate; styles united to middle, free portions recurved. Fruit globose, ca. 6 mm. Fl. Jun–Jul, fr. Aug–Oct.

• Scrub fields on mountain slopes or roadsides; 2000–2600 m. Hubei, Shaanxi, Sichuan.

15. *Eleutherococcus lasiogyne* (Harms) S. Y. Hu, J. Arnold Arbor. 61: 109. 1980.

康定五加 kang ding wu jia

Acanthopanax lasiogyne Harms in Sargent, Pl. Wilson. 2: 563. 1916; *A. lasiogyne* var. *ferrugineus* Y. R. Li; *A. ternatus*

Rehder; *A. wardii* W. W. Smith; *Eleutherococcus lasiogyne* var. *ferrugineus* (Y. R. Li) H. Ohashi; *E. wardii* (W. W. Smith) S. Y. Hu.

Trees, small, or shrubs, to 10 m tall. Branches glabrous, unarmed or with scattered recurved prickles, slightly flattened at base. Petiole 2–5 cm, glabrous; petiolules very short; leaflets 3, ovate, oblong-ovate, or obovate-oblong, 3–6 × 1.5–4 cm, papery, secondary veins 5 or 6 pairs, slightly conspicuous, base cuneate or broadly so, oblique on lateral leaflets, margin entire or apically serrate, apex acute or shortly acuminate. Inflorescence terminal, a solitary umbel or a small panicle of umbels, borne on leafy shoots, with 1 to several umbels; peduncles 0.5–2 cm; pedicels 5–10 mm, peduncles and pedicels white or ferruginous tomentose, soon glabrescent. Calyx with 5 teeth, white tomentose when young, glabrescent. Ovary 2-carpellate; styles united at base, free portions recurved. Fruit globose, slightly compressed laterally, 7–9 mm; styles persistent, ca. 1.5 mm, reflexed apically. Fl. Jul–Sep, fr. Sep–Nov.

• Scrub fields, forests, roadsides; 2000–3400 m. Sichuan, SE Xizang, NW Yunnan.

This species is used medicinally.

16. *Eleutherococcus scandens* (G. Hoo) H. Ohashi, J. Jap. Bot. 62: 359. 1987.

匍匐五加 pu fu wu jia

Acanthopanax scandens G. Hoo, Acta Phytotax. Sin., Addit. 1: 158. 1965.

Shrubs, scandent. Branches unarmed, glabrous. Petiole 2–5 cm, glabrous; leaflets 3, sessile, ovate or ovate-elliptic, 5–7 × 3.5–5 cm, membranous, both surfaces scattered setose, secondary veins 4–6 pairs, distinct, base broadly cuneate, margin setose-serrulate, apex acute or acuminate. Umbels terminal, solitary or 2 or 3 together in a small panicle; peduncles 1–2 cm; pedicels ca. 8 mm, glabrous. Calyx 5-toothed, glabrous. Ovary 2-carpellate; styles 2, united to middle. Fruit black, globose, slightly compressed, ca. 8 mm in diam. Seeds reniform, white. Fl. Jun–Jul, fr. Sep–Oct.

• Scrub fields, among scattered trees, along streams, roadsides; below 800 m. Anhui, N Fujian, Jiangxi, Zhejiang.

17. *Eleutherococcus trifoliatum* (Linnaeus) S. Y. Hu, J. Arnold Arbor. 61: 110. 1980.

白藜 bai le

Zanthoxylum trifoliatum Linnaeus, Sp. Pl. 1: 270. 1753; *Acanthopanax aculeatus* (Aiton) Witte; *A. sepium* Seemann; *A. trifoliatum* (Linnaeus) Merrill; *Panax aculeatus* Aiton.

Shrubs, scandent or climbers, to 7 m tall. Branches with scattered, recurved prickles. Petiole 2–6 cm, glabrous, prickly; petiolules 2–8 mm; leaflets 3(–5), ovate, elliptic-ovate, or oblong, 4–10 × 2–4.5 cm, papery, adaxially glabrous or slightly setose on midvein and veins, secondary veins 5 or 6 pairs, base cuneate, margin serrulate, apex acute or acuminate. Inflorescence a terminal raceme of umbels or a compound umbel, borne on leafy shoots, with 3–10 umbels; peduncles 2–7 cm; pedicels 1–2 cm. Calyx with 5 teeth, glabrous. Ovary 2-carpellate; styles united to middle. Fruit globose, laterally com-

pressed, 3–4 mm; style bifid, ca. 1.5 mm. Fl. Aug–Nov, fr. Sep–Dec.

Scrub fields, roadsides, forest margins, in valleys or on mountain slopes; below 1000 m in E and 3200 m in W part of range. S Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Hubei, S Jiangsu, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [India, Japan, Philippines, Thailand, Vietnam].

This species is used medicinally.

Material from Guangxi with 3-foliolate leaves, generally entire leaflet margins, and more rounded leaflet bases may represent a new infraspecific taxon.

18. *Eleutherococcus setosus* (H. L. Li) Y. R. Ling, Acta Phytotax. Sin. 15(2): 85. 1977.

刚毛白藜 gang mao bai le

Acanthopanax trifoliatum (Linnaeus) Merrill var. *setosus* H. L. Li, Sargentia 2: 87. 1942; *A. setosus* (H. L. Li) C. B. Shang; *Eleutherococcus trifoliatum* var. *setosus* (H. L. Li) H. Ohashi.

Shrubs, scandent, to 4 m tall. Branches with scattered, recurved prickles. Petiole 4–6 cm, unarmed or with 1 or 2 small prickles; leaflets (3–)5, oblong or obovate-lanceolate, rarely ovate, 5–11 × 2–4 cm, papery, adaxially ± densely setose on midvein and veins, secondary veins 5–8 pairs, distinct, base rounded or broadly cuneate, margins setose-biserrulate, apex long acuminate. Inflorescence terminal; umbels 1–3, borne on leafy shoots; peduncles 1–3 cm; pedicels ca. 1 cm, glabrous. Calyx glabrous. Corolla white. Ovary 2-carpellate; styles fully united into a column or slightly bifid apically. Fruit black at maturity, compressed-globose, ca. 5 mm in diam.; pedicels to 1.5 cm. Fl. Jul–Oct, fr. Oct–Nov.

• Scrub fields, forest margins on mountain slopes or roadsides; below 1300 m. S Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Taiwan, Yunnan.

