Flora of China 13: 475–480. 2007.

21. PENTAPANAX Seemann, J. Bot. 2: 290, 294. 1864.

羽叶参属 yu ye shen shu

Aralia sect. *Pentapanax* (Seemann) J. Wen; *Hunaniopanax* C. J. Qi & T. R. Cao; *Parapentapanax* Hutchinson.

Trees or shrubs, evergreen or deciduous, sometimes epiphytic, hermaphroditic or andromonoecious, unarmed. Leaves pinnately compound, rarely simple; leaflets entire to serrate; stipules absent. Inflorescence a terminal panicle of umbels, heads, or racemules, glabrous or pubescent, developing from specialized floral buds, usually surrounded by numerous persistent bracts at base. Pedicels articulate below ovary. Calyx minutely 5-dentate. Petals 5(–7), imbricate. Stamens 5(–7). Ovary (3–)5(–7)-carpellate; styles united into a column or divided, as many as carpels. Fruit a drupe, globose to ellipsoid or ovoid. Seeds as many as carpels; endosperm uniform.

Between 18 and 22 species: restricted to Asia, especially the Sino-Himalayan region; 16 species (nine endemic) in China.

The first author finds it hard to accept Wen's point of view (see following paragraph), in which *Pentapanax* was treated as a section of the genus *Aralia*, and instead recognizes *Pentapanax* as distinct from *Aralia* on the basis of three main morphological differences: (1) inflorescences developing from specialized floral buds that are usually surrounded at the base by numerous persistent bracts (vs. from mixed buds, not surrounded by bracts at the base); (2) plants woody and unarmed (vs. woody and usually prickly, or herbaceous); and (3) leaves 1(–3)-pinnate (vs. leaves usually 2–4-pinnate).

Several phylogenetic studies have shown, however, that *Pentapanax* forms a group that is clearly nested within *Aralia* (Wen, Brittonia 45: 47–55. 1993; Wen, Edinburgh J. Bot. 58: 183–200. 2001; Wen et al., Acta Bot. Yunnan. 24: 557–568. 2002). The most recent revision (Wen, Cathaya 13–14: 1–116. 2002) treated the members of this group as a section within *Aralia*, an interpretation favored by the second author.

1a. Evergreen trees; ultimate inflorescence units racemose.
2a. Inflorescence glabrous; pedicels 2–3 mm; styles mostly united into a column ..... 1. *P. subcordatus*
2b. Inflorescence ± pilose; pedicels 0.5–1.5 mm; styles free to united to middle ..... 2. *P. racemosus*
1b. Deciduous shrubs, small trees, or herbs; ultimate inflorescence units umbellate or capitulate.
3a. Leaflets entire or finely serrulate at margin.
4a. Leaves simple, abaxially glaucous ..... 3. *P. hypoglaucus*
4b. Leaves pinnately compound, leaflets 3–5.
5a. Ovary 3(–5)-carpellate; styles free at apex only ..... 4. *P. glabrifoliolatus*
5b. Ovary 5-carpellate; styles united into a column.
6a. Inflorescence a terminal umbel or small panicle of umbels with distinct peduncles ..... 5. *P. parasiticus*
6b. Inflorescence with 1–3 verticils of flowers along primary axis ..... 6. *P. verticillatus*
3b. Leaflets serrate at margin (except in 13b. *P. fragrans* var. *forrestii*).
7a. Leaves 2- or 3-pinnately compound.
8a. Leaves 2- or 3-pinnately compound, often with accessory pinnae, leaflets often abaxially densely white tomentose ..... 15. *P. plumosus*
8b. Leaves mostly 2-pinnately compound, without accessory pinnae, leaflets abaxially glabrous.
9a. Leaflets ovate or suborbicular, 3–6 × 4–6.5 cm, apex acute; peduncle 2–4 cm ..... 12. *P. caesius*
9b. Leaflets ovate-oblong or ovate-lanceolate, 1.5–3 × 0.5–3.5 cm, apex acuminate; peduncle 3–6 cm ..... 16. *P. wilsonii*
7b. Leaves 1-pinnately compound or trifoliolate.
10a. Inflorescence without a distinct primary axis, or primary axis less than 2 cm.
11a. Secondary axes of inflorescence with a terminal umbel and 2–6 lateral verticellately arranged umbels ..... 13. *P. fragrans*
11b. Secondary axes of inflorescence with a single terminal umbel ..... 14. *P. longipedunculatus*
10b. Inflorescence with a distinct primary axis 5–50 cm.
12a. Styles free or united basally, free, reflexed apically.
13a. Inflorescence and leaflets pubescent; leaflets (3–)5; styles connate at base, free apically ..... 11. *P. tomentellus*
13b. Inflorescence and leaflets glabrous; leaflets 5–7; styles free, reflexed.
14a. Leaflets ovate to suborbicular, subleathery, apex acute, margin serrulate ..... 12. *P. caesius*
14b. Leaflets ovate-elliptic, membranous, apex acuminate, margin irregularly serrate ..... 7. *P. yunnanensis*
12b. Styles united into a column, sometimes divided at their apices.
15a. Inflorescence and leaflets glabrous.
16a. Leaflets (3–)5, margins serrate ..... 7. *P. yunnanensis*
16b. Leaflets 3, margins ciliate ..... 8. *P. longipes*
15b. Inflorescence densely pubescent; secondary veins more than 8 pairs.

17a. Leaflets 3–5, 7–20 × 4–11 cm ..... 9. *P. henryi*
17b. Leaflets 5–7, 6–9 × 2.5–4 cm ..... 10. *P. castanopsidicola*

1. Pentapanax subcordatus (Wallich ex G. Don) Seemann, J. Bot. 2: 295. 1864 [*"subcordatum"*].

心叶羽叶参 xin ye yu ye shen

Hedera subcordata Wallich ex G. Don, Gen. Hist. 3: 394. 1834; *Aralia subcordata* (Wallich ex G. Don) J. Wen; *Parapentapanax subcordatus* (G. Don) Hutchinson.

Trees, evergreen, small, sometimes epiphytic or semiepiphytic, probably hermaphroditic. Leaves 1-pinnately compound; petiole 10–16 cm; petiolules 1.5–3 cm; leaflets 3–5, ovate, 7.5–15 × 4.5–9 cm, thickly papery to subleathery, glabrous, secondary veins ca. 8 pairs, tertiary veins distinct on both surfaces, base subcordate to truncate, margin entire or crenate-serrulate, apex acuminate. Inflorescence a terminal panicle of racemes; primary axis 2–10 cm; secondary axes 6–12, each 20–35 cm; tertiary axes 7–20, each 3–8 cm; pedicels 2–3 mm, glabrous. Ovary 5-carpellate; styles almost entirely united into a column. Fruit globose, 3–4 mm in diam.; styles persistent, arms erect to slightly recurved.

Evergreen forests; ca. 2000 m. W Yunnan (Tengchong) [India].

2. Pentapanax racemosus Seemann, J. Bot. 2: 295. 1864 [*"racemosum"*].

总序羽叶参 zong xu yu ye shen

Aralia gigantea J. Wen; *A. lihengiana* J. Wen et al.; *Parapentapanax racemosus* (Seemann) Hutchinson.

Trees, evergreen, or epiphytic shrubs, to 10 m tall, probably hermaphroditic. Leaves 1-pinnately compound; petiole 9–17 cm; petiolules 0.2–2 cm, those of terminal leaflets 3.5–7 cm; leaflets (3–)5–7, ovate, 7–21 × 3.5–13 cm, membranous or papery, glabrous, secondary veins 8–10 pairs, distinct, tertiary veins indistinct, base rounded to subcordate, rarely cordate or acute, margin subentire or sparsely serrate, apex acute to acuminate. Inflorescence a terminal panicle of racemes, pilose; primary axis 6–15 cm; secondary axes 6–16, each to 45 cm; tertiary axes 15–40, each 4–9 cm; pedicels 0.5–1.5 mm, pilose. Ovary 3–5-carpellate; styles free or united at base to middle. Fruit globose to ovoid-globose, 3–4 × 2.2–4 mm; styles persistent, recurved. Fl. May–Jul, fr. Jun–Aug.

Evergreen to warm-temperate forests; 1500–3200 m. SE Xizang (Cona), S, SW, and W Yunnan [Bhutan, E India, Nepal].

Wen (Cathaya 13–14: 89–92. 2002) recognized *Aralia lihengiana* as distinct from *Pentapanax racemosus* (for which the correct name is *A. gigantea* when treated in *Aralia*) on the basis of differences in the size and shape of inflorescence bracts, the number of carpels, the degree of style fusion, and fruit shape.

3. Pentapanax hypoglaucus (C. J. Qi & T. R. Cao) C. B. Shang & X. P. Li, Proc. Int. Symp. Bot. Gard. 626. 1990.

粉背羽叶参 fen bei yu ye shen

Hunaniopanax hypoglaucus C. J. Qi & T. R. Cao, Acta Phytotax. Sin. 26: 49. 1988; *Aralia hypoglauca* (C. J. Qi & T. R. Cao) J. Wen & Y. F. Deng.

Shrubs, epiphytic, 0.5–1 m tall, apparently andromonoecious. Leaves simple; petiole 1–5 cm; blade elliptic to ovate, 7–11 × 5–7 cm, thickly papery, glabrous, abaxially glaucous, secondary veins 7 or 8 pairs, base truncate, rarely broadly cuneate, margin entire, apex acute. Inflorescence a terminal panicle, umbels few, often 2 at base, 1 terminal, often with some flowers verticillate on main axis, pubescent; peduncle 1.2–1.5 cm; pedicels 7–13 mm, pubescent. Calyx 0.65–0.8 mm, 5-denticulate. Ovary 5-carpellate; styles almost entirely united into a column. Fruit ovoid-globose, 3.5–4 mm high, slightly less in diam.; styles persistent, slightly divided at apex. Fl. Sep, fr. Sep–Oct.

● Dense, humid forests; 700–1400 m. Guangxi, SW Hunan (Chengbu).

4. Pentapanax glabrifoliolatus C. B. Shang, Acta Phytotax. Sin. 18: 94. 1980.

光羽叶参 guang yu ye shen

Aralia glabrifoliolata (C. B. Shang) J. Wen.

Trees, small, or shrubs, 3–6 m tall, andromonoecious. Leaves 1-pinnately compound; petiole 8–10 cm; petiolules 0.3–1.1 cm; leaflets 5, oblong-ovate to broadly ovate, 10–19 × 6–9 cm, subleathery, glabrous, secondary veins 6–9 pairs, tertiary veins distinct on both surfaces, base subcordate to rounded, margin entire or serrulate, apex acute. Inflorescence a terminal panicle of umbels, pubescent; primary axis lacking; secondary axes 8–15, each 10–25 cm; tertiary axes 20–30, each 1–1.5 cm, with a terminal umbel of bisexual flowers and usually 1–3 lateral umbels of male flowers; pedicels 3–76 mm. Ovary 3(–5)-carpellate; styles 1–1.5 mm, divided at apex only. Fruit subglobose, ca. 5 mm high, 3.5–4 mm in diam.; styles persistent.

● Thickets, forests; 1800–2500 m. SE Yunnan (Jinping, Malipo, Wenshan).

5. Pentapanax parasiticus (D. Don) Seemann, J. Bot. 2: 296. 1864 [*"parasiticum"*].

寄生羽叶参 ji sheng yu ye shen

Shrubs, scandent, to 3 m tall, hermaphroditic. Leaves 1-pinnately compound; petiole 2.5–10 cm; petiolules 3–5 mm; leaflets (2 or)3–5, ovate to elliptic, 2.5–7 × 1.5–3 cm, membranous to thickly papery, glabrous, abaxially glaucous, secondary veins 6–9 pairs, tertiary veins distinct on both surfaces, base rounded or cuneate, margin entire, apex acute or acuminate. Inflorescence a terminal umbel or occasionally a small panicle of 2–5(–8) umbels, pubescent; peduncle 1–5 cm; pedicels 0.8–1.5 cm, glabrous or pubescent. Ovary 5-carpellate; styles united below, divided at apex. Fruit globose to ovoid, 4–4.5 mm high, 3.5–4 mm in diam.; styles persistent. Fl. Aug–Nov, fr. Nov–Dec.

Evergreen and deciduous forests, often epiphytic, sometimes parasitic; 2100–2500 m. Sichuan, C and NW Yunnan [Bhutan, India, Nepal,

Thailand].

The two varieties recognized here were not retained by Wen (Cathaya 13–14: 59–64. 2002), who indicated that the characters on which they are based appear to vary randomly and do not show any geographic correlation.

1a. Inflorescence usually with 2–8 umbels on main rachis, peduncle and pedicels glabrous ..... 5a. var. *parasiticus*
1b. Inflorescence usually a solitary umbel, peduncle and pedicels ferruginous pubescent ..... 5b. var. *khasianus*

5a. Pentapanax parasiticus var. **parasiticus**

寄生羽叶参(原变种) ji sheng yu ye shen (yuan bian zhong)

Hedera parasitica D. Don, Prodr. Fl. Nepal. 188. 1825; *Aralia parasitica* (D. Don) J. Wen (1993), not Buchanan-Hamilton ex D. Don (1825).

Inflorescence usually with 2–8 umbels on main rachis; peduncle and pedicels glabrous.

Evergreen and deciduous forests; ca. 2500 m. Sichuan (Ebian, Emei Shan), NW Yunnan [Bhutan, India, Nepal, Thailand].

5b. Pentapanax parasiticus var. **khasianus** C. B. Clarke in J. D. Hooker, Fl. Brit. India 2: 724. 1879 [*"khasiana"*].

毛梗寄生羽叶参 mao geng ji sheng yu ye shen

Inflorescence usually a solitary umbel; peduncle and pedicels ferruginous pubescent.

Forests; 2100–2400 m. C Yunnan (Songming) [India].

6. Pentapanax verticillatus Dunn, J. Linn. Soc., Bot. 35: 498. 1903 [*"verticillatum"*].

轮伞羽叶参 lun san yu ye shen

Aralia verticillata (Dunn) J. Wen.

Shrubs, to 5 m tall, hermaphroditic or possibly andromonoecious. Leaves 3-foliolate; petiole 3–9 cm; petiolules to ca. 5 mm; leaflets ovate to elliptic, 5.5–9 × 3–5 cm, subleathery, glabrous, abaxially glaucous, secondary veins 6–9 pairs, distinct on both surfaces, tertiary veins indistinct, base cuneate to rounded, margin entire, revolute, apex acute. Inflorescence a terminal, narrow panicle with 1–8 umbels on lower parts of primary axis and 1–3 verticils of flowers, pilose; peduncle 1.5–2.5 cm; pedicels 6–10 mm, pilose. Ovary 5-carpellate; styles united into a column, slightly divided at apex. Fruit ovoid-globose, ca. 4.5 mm high, 3.5–4 mm in diam.; styles persistent. Fl. Nov, fr. Dec–Feb.

Mixed forests, shrublands, commonly on limestone; 1200–2000 m. W Guangxi, E Yunnan [N Vietnam].

7. Pentapanax yunnanensis Franchet, J. Bot. (Morot) 10: 305. 1896.

云南羽叶参 yun nan yu ye shen

Aralia delavayi J. Wen; *A. shangiana* J. Wen.

Shrubs, 2–8 m tall, probably andromonoecious. Leaves 1-pinnately compound; petiole 4–12 cm; petiolules to 4 cm, shorter on lateral leaflets; leaflets (3–)5, ovate to ovate-elliptic or broadly ovate, 4–9.5 × 2.5–6.2 cm, papery to membranous, glabrous, secondary veins 5–9 pairs, tertiary veins distinct on both surfaces, base broadly acute to rounded or subcordate, margin serrate, apex acute to acuminate. Inflorescence a terminal panicle of umbels, pilose or glabrous; primary axis to ca. 30 cm; secondary axes 10–20, each to ca. 8–15 cm, with a terminal umbel of bisexual flowers and 1 or 2 lateral umbels of male flowers; peduncle 1.5–4 cm (shorter in male umbels); pedicels 5–13 mm (shorter in male flowers), glabrous. Ovary 5-carpellate; styles united into a column, rarely divided to middle or base. Fruit globose, ca. 4 mm in diam.; styles persistent. Fl. May–Jun, fr. Jul–Aug.

● Montane evergreen forests, shrublands in valleys, roadsides, dry areas; 1200–2500 m. SW Sichuan, Yunnan.

Wen (Cathaya 13–14: 46–48. 2002) recognized *Aralia shangiana* as distinct from *Pentapanax yunnanensis* (for which the correct name is *A. delavayi* when treated in *Aralia*) on the basis of differences in several features, including leaflet shape and texture and inflorescence indument.

8. Pentapanax longipes (Merrill) C. B. Shang & C. F. Ji, **comb. nov.**

独龙羽叶参 du long yu ye shen

Basionym: *Gamblea longipes* Merrill, Brittonia 4: 128. 1941; *Aralia kingdon-wardii* J. Wen et al.; *Pentapanax trifoliatus* K. M. Feng.

Shrubs, to ca. 6 m tall, climbers or epiphytes, probably andromonoecious. Leaves trifoliolate; petiole 6–8 cm; central petiolule ca. 5 cm, lateral ones 1.5–2.5 cm; leaflets ovate, 8–17 × 4–10 cm, papery, glabrous, secondary veins 8–10 pairs, distinct, tertiary veins inconspicuous, base rounded to broadly acute, margin ciliate, apex acuminate. Inflorescence a terminal corymb of umbels, glabrous; primary axis 5–15 cm; secondary axes 11–12, each 11–17 cm, with several terminal umbels of bisexual flowers and a few lateral umbels of apparently male flowers; peduncle 2–4 cm; pedicels 1–2 cm. Ovary 5-carpellate; styles united basally into a column, free arms recurved. Fruit globose, 5–6 mm in diam.; styles persistent. Fl. Dec–Mar, fr. Mar–May.

Deciduous and mixed evergreen forests; 1200–2000 m. Xizang, NW Yunnan (Gongshan) [Bhutan, NE India, N Myanmar].

The oldest name for this species is *Gamblea longipes*, for which *Aralia kingdon-wardii* is a nomen novum recently proposed because the combination *A. longipes* Truffaut had already been made for another species. In *Pentapanax*, however, the specific epithet *"longipes"* is available and is accordingly combined here.

9. Pentapanax henryi Harms, Bot. Jahrb. Syst. 23: 21. 1896.

锈毛羽叶参 xiu mao yu ye shen

Aralia franchetii J. Wen; *Pentapanax henryi* var. *fangii* G. Hoo; *P. henryi* var. *tomentosus* G. Hoo; *P. henryi* var. *wangshanensis* W. C. Cheng; *P. lanceolatus* G. Hoo; *P. tomentellus* (Franchet) C. B. Shang var. *tomentosus* (G. Hoo) Y. F. Deng.

Shrubs or small trees to 8 m tall, andromonoecious.

Leaves 1-pinnately compound; petiole 8–15(–25) cm; petiolules 2–8 cm; leaflets (3–)5, ovate to elliptic, 7–20 × 4–11 cm, papery, abaxially glabrous with small tufts of pubescence in axils of veins, adaxially glabrous, secondary veins 8–12 pairs, abaxially more distinct, tertiary veins indistinct, base rounded or obtuse, rarely subcordate, margin sharply serrate to serrulate, apex acute or shortly acuminate. Inflorescence a terminal panicle of umbels, reddish brown pubescent; primary axis 15–30 cm; secondary axes 18–25, each 4.5–11 cm, with a terminal umbel of bisexual flowers and up to ca. 8 lateral umbels of apparently male flowers. Ovary 5-carpellate; styles united into a column, sometimes divided at apex. Fruit globose, 4–5(–6) mm in diam.; styles persistent. Fl. Aug–Oct, fr. Sep–Dec.

● Scrub lands, cliffs, rocky slopes; 1000–3000 m. Anhui, Guangxi, Hubei, Jiangxi, Sichuan, Zhejiang.

This species was included within *Aralia tomentella* (*Pentapanax tomentellus*) by Frodin and Govaerts (World Checklist Bibliogr. Araliaceae, 75. 2004 [“2003”]), but is now recognized as distinct by J. Wen (pers. comm. to P. Lowry).

10. Pentapanax castanopsidicola Hayata, Icon. Pl. Formosan. 5: 74. 1915 [*“castanopsisicola”*].

台湾羽叶参 tai wan yu ye shen

Aralia castanopsidicola (Hayata) J. Wen.

Shrubs or small trees, hermaphroditic or andromonoecious. Leaves 1-pinnately compound; petiole 4–13 cm; petiolule of terminal leaflet to 2.5 cm, those of lateral leaflets very short; leaflets 5–7, elliptic to narrowly ovate, 6–9 × 2.5–4 cm, papery, glabrous, secondary veins 9–10 pairs, distinct on both surfaces, base obtuse to rounded, margin serrulate, apex acuminate. Inflorescence a terminal panicle of umbels, pilose; primary axis ca. 25 cm; secondary axes 18–35, each 3.5–7 cm, with a terminal umbel of bisexual flowers and sometimes 1–5 smaller (probably male) lateral umbels; pedicels 7.5–10 mm, pilose. Ovary 5-carpellate; styles united into a column, free at apex. Fruit globose, 3–4 mm in diam.; styles persistent. Fl. Oct–Dec, fr. Jan.

● Evergreen forests, usually epiphytic on trunks of *Castanopsis*; 1800–2300 m. Taiwan.

11. Pentapanax tomentellus (Franchet) C. B. Shang, J. Nanjing Inst. Forest. 1985(2): 24. 1985.

马肠子树 ma chang zi shu

Shrubs or small trees, 2–7 m tall, apparently andromonoecious. Leaves 1-pinnately compound; petiole 6–14 cm; petiolules 1–6 mm; leaflets (3–)5–7, ovate to ovate-elliptic, 6–15 × 3–8 cm, papery, both surfaces sparsely pubescent or abaxially with tufts of pubescence in axils of veins, secondary veins 6–9 pairs, indistinct or slightly impressed adaxially, base rounded or broadly acute to subcordate, margin serrate, apex acute. Inflorescence a terminal panicle of umbels, densely brownish pubescent; primary axis to 50 cm; secondary axes 30–40, each 3–11 cm, with a terminal umbel of bisexual flowers and several lateral umbels of apparently male flowers; peduncle 1.5–2.5 cm; pedicels 5–10 mm (shorter in male flowers), densely pubescent. Ovary 5-carpellate; styles free nearly to base or united to middle. Fruit globose, 4–4.5 mm in diam.; styles persistent, reflexed. Fl. Sep–Oct, fr. Oct–Nov.

● Forests in valleys, shaded thickets, along streams, rocky areas, often on limestone; 1200–3200 m. SW Sichuan, Xizang, Yunnan.

This species is used medicinally.

The two varieties recognized here were not retained by Wen (Cathaya 13–14: 52–55. 2002), who indicated that the characters on which *Pentapanax tomentellus* var. *distinctus* was based can be observed on the type specimen of *Aralia tomentella*.

1a. Leaflets abaxially subglabrous; inflorescence ca. 30 cm; styles united to middle ..... 11a. var. *tomentellus*
1b. Leaflets abaxially densely tomentose; inflorescence to 40 cm; styles free nearly to base ..... 11b. var. *distinctus*

11a. Pentapanax tomentellus var. **tomentellus**

马肠子树(原变种) ma chang zi shu (yuan bian zhong)

Aralia tomentella Franchet, J. Bot. (Morot) 10: 304. 1896; *Pentapanax henryi* Harms var. *larium* (Handel-Mazzetti) Handel-Mazzetti; *P. larium* Handel-Mazzetti.

Leaflets abaxially subglabrous. Inflorescence ca. 30 cm. Styles united to middle.

● Shaded thickets, along streams, rocky areas, often on limestone; 1200–2600 m. SW Sichuan, Yunnan.

11b. Pentapanax tomentellus var. **distinctus** C. B. Shang, J. Nanjing Inst. Forest. 1985(2): 25. 1985.

离柱马肠子树 li zhu ma chang zi shu

Leaflets abaxially densely tomentose. Inflorescence to 40 cm. Styles free nearly to base.

● Forests in valleys. S and SW Yunnan.

12. Pentapanax caesius (Handel-Mazzetti) C. B. Shang, J. Nanjing Inst. Forest. 1985(2): 26. 1985.

圆叶羽叶参 yuan ye yu ye shen

Aralia caesia Handel-Mazzetti, Symb. Sin. 7: 702. 1933; *A. staphyleina* Handel-Mazzetti.

Shrubs, to 6 m tall, andromonoecious. Leaves 1- or 2-pinnately compound; petiole 2.5–9 cm; petiolules 0.2–9 cm; leaflets (3–)5–7, ovate or suborbicular, 3–6 × 4.5–6.5 cm, papery or subleathery, glabrous, secondary veins 4–6 pairs, tertiary veins distinct on both surfaces, base rounded, sometimes oblique or subcordate, margin sparsely serrulate, apex acute. Inflorescence a terminal panicle of umbels, glabrous; primary axis to ca. 30 cm; secondary axes 8–10, each ca. 30 cm, with a terminal umbel of bisexual flowers and 1–5 lateral umbels of male flowers; peduncle 2.5–4 cm; pedicels 1.2–1.3 cm (shorter in male flowers). Ovary 5-carpellate; styles 5, free. Fruit globose, 5–6.5 mm in diam.; styles persistent, reflexed. Fl. May–Jun, fr. Jul–Sep.

● Open thickets, rocky slopes, on limestone; 2400–3000 m. SW

Sichuan, NW Yunnan.

13. Pentapanax fragrans (D. Don) T. D. Ha, Araliae Fl. Sev. V'etnama, Avtoref Diss. 1. 1972.

羽叶参 yu ye shen

Trees, small, or scandent or climbing shrubs, to 15 m tall, andromonoecious or sometimes hermaphroditic. Leaves 1-pinnately compound; petiole 6–18 cm; petiolules of terminal leaflet 3–10 cm, those of lateral leaflets shorter; leaflets (3–)5, ovate, narrowly ovate, or oblong to elliptic, 6–15 × 2.5–8 cm, both surfaces glabrous or abaxially pubescent on veins, secondary veins 8–10 pairs, conspicuous, base rounded to acute, margin ciliate to serrate, sometimes entire, apex acute to acuminate. Inflorescence a terminal corymb of umbels, glabrous to pilose; primary axis 0.5–3.5 cm; secondary axes 7–13, each 7–17 cm, with a terminal umbel of bisexual flowers and 2–6 lateral, verticillate umbels of male flowers, peduncle 2–4.5 cm; pedicels 5–15 mm, glabrous or pilose. Ovary 5-carpellate; styles united into a column. Fruit ovoid-globose, 4–5.5 mm in diam.; styles persistent. Fl. Jun–Aug, fr. Aug–Oct.

Moist forests, forests in valleys, forest margins, ravines, mountain slopes; 2000–3600 m. SW Sichuan, S Xizang, Yunnan [Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, N Thailand, N Vietnam].

This species is used medicinally.

Material of this species was referred by Wen (Cathaya 13–14: 75–82. 2002) to *Aralia leschenaultii*, which is the correct name when treated in that genus. Frodin and Govaerts (World Checklist Bibliogr. Araliaceae, 68. 2004 ["2003"]) incorrectly referred to this species as *A. fragrans* (D. Don) Jebb & J. Wen, which is illegtimate because it is a later homonym. The two varieties recognized here were not retained by Wen (loc. cit.).

1a. Leaflets (3–)5, papery or subleathery, margin ciliate to serrate ..... 13a. var. *fragrans*
1b. Leaflets usually 3, membranous or papery, margin entire ..... 13b. var. *forrestii*

13a. Pentapanax fragrans var. **fragrans**

羽叶参(原变种) yu ye shen (yuan bian zhong)

Hedera fragrans D. Don, Prodr. Fl. Nepal. 187. 1825; *Aralia fragrans* (D. Don) Jebb & J. Wen (2001), not G. Don ex Loudon (1830); *A. leschenaultii* (Candolle) J. Wen; *H. leschenaultii* (Candolle) Wright & Arnott; *H. trifoliata* Wight & Arnott; *Panax bijugus* Wallich ex G. Don; *P. leschenaultii* Candolle; *Pentapanax leschenaultii* (Candolle) Seemann; *P. leschenaultii* var. *simplex* K. M. Feng; *P. leschenaultii* var. *villosus* Y. R. Li; *P. truncicola* Handel-Mazzetti.

Leaflets (3–)5, papery or subleathery, margin ciliate to serrate.

Moist forests, forest margins, ravines, mountain slopes; 2000–3600 m. SW Sichuan (Muli), S Xizang (Kamen He, Nyêmo, Yadong), Yunnan [Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, N Thailand, N Vietnam].

13b. Pentapanax fragrans var. **forrestii** (W. W. Smith) C. B. Shang in Y. W. Yuan et al., Proc. Int. Symp. Bot. Gard. 631. 1990.

全缘羽叶参 quan yuan yu ye shen

Pentapanax forrestii W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 10: 58. 1917; *P. leschenaultii* var. *forrestii* (W. W. Smith) H. L. Li.

Leaflets usually 3, membranous or papery, margin entire.

● Forests in valleys; 2300–3400 m. SE Xizang, NW Yunnan.

14. Pentapanax longipedunculatus N. S. Bui, Adansonia, sér. 2, 9: 392. 1969.

长梗羽叶参 chang geng yu ye shen

Pentapanax fragrans (D. Don) T. D. Ha var. *longipedunculatus* (N. S. Bui) T. D. Ha.

Shrubs, presumably hermaphroditic. Leaves 1-pinnately compound; petiole 8–13 cm; terminal petiolule to 3 cm, lateral ones ca. 5 mm; leaflets 5–7, elliptic or ovate-lanceolate, 6–15 × 3–5.5 cm, papery or subleathery, secondary veins ca. 7 pairs, tertiary veins distinct, base rounded to obtuse, margin serrulate, apex acuminate. Inflorescence a terminal corymb of umbels, glabrous to pilose; primary axis very short, secondary axes 4–10 cm, each with a single terminal umbel of bisexual flowers; pedicels 1–1.5 cm. Ovary 5-carpellate; styles united into a column.

Dense forests; 1700–2300 m. SE Yunnan [Thailand, N Vietnam].

Wen (Cathaya 13–14: 75. 2002) did not recognize this taxon as distinct from *Pentapanax fragrans* (for which the correct name when treated in the genus *Aralia* is *A. leschenaultii*).

15. Pentapanax plumosus (H. L. Li) C. B. Shang, J. Nanjing Inst. Forest. 1985(2): 26. 1985.

糙羽叶参 cao yu ye shen

Aralia plumosa H. L. Li, Sargentia 2: 114. 1942; *A. wilsonii* Harms var. *plumosa* (H. L. Li) K. M. Feng; *Pentapanax wilsonii* (Harms) C. B. Shang var. *plumosus* (H. L. Li) Y. F. Deng.

Shrubs, 0.5–5 m tall, andromonoecious or hermaphroditic. Leaves 2- or 3-pinnately compound; petiole 5–15 cm; petiolules very short to 1.5 cm; leaflets 3–5 per pinna, basal pair each with an accessory pinna of 3–5 leaflets; leaflets ovate, 1–4 × 0.4–2 cm, papery, abaxially glabrous to densely white tomentose, adaxially glabrous to strigose or tomentose, scabrous, secondary veins 4 or 5 pairs, distinct on both surfaces, base acute to

rounded or subcordate, margin irregularly serrulate or biserrulate, apex acuminate. Inflorescence a terminal panicle of umbels, glabrous to slightly pilose; primary axis 10–25 cm; secondary axes 10–15, each to ca. 15 cm, with a terminal umbel of bisexual flowers and 1–5 lateral umbels of bisexual or male flowers; peduncle 2–9 cm; pedicels 0.7–2 cm, glabrous. Ovary 5(or 6)-carpellate; styles united to middle. Fruit globose, ca. 4 mm in diam. Fl. Jun–Jul, fr. Aug–Oct.

● Forests, rocky slopes; 2300–3000 m. SW Sichuan (Jiulong, Mianning, Muli).

16. Pentapanax wilsonii (Harms) C. B. Shang, J. Nanjing Inst. Forest. 1985(2): 26. 1985.

西南羽叶参 xi nan yu ye shen

Aralia wilsonii Harms in Sargent, Pl. Wilson. 2: 567. 1916.

Shrubs, to 3 m tall, andromonoecious. Leaves (1 or)2- or 3-pinnately compound; petiole 5–15 cm; leaflets 3–5(–7) per pinna, ovate, 1.5–3 × 0.5–3 cm, papery, abaxially glabrous, adaxially glabrous or slightly pubescent, secondary veins 4–6 pairs, tertiary veins distinct on both surfaces, base broadly cuneate or rounded to subcordate, margin sharply and irregularly serrulate or biserrulate, apex acuminate. Inflorescence a terminal panicle of umbels, glabrous, sometimes slightly pilose when young; primary axis ca. 30 cm; secondary axes 7–20, each ca. 20 cm, with a terminal umbel of bisexual flowers and several lateral, sometimes verticillate umbels of male flowers; peduncle 3–6 cm; pedicels 0.7–2 cm (shorter in male flowers). Ovary 5(or 6)-carpellate; styles free or united basally. Fruit globose, ca. 5 mm in diam.; styles persistent. Fl. May–Jul, fr. Jun–Sep.

● Evergreen forests, rocks, open shrublands; 1700–2700 m. SW Sichuan, NW Yunnan.

"Aralia caesia var. *pubescens"* (K. M. Feng & D. D. Tao, Vasc. Pl. Hengduan Mountains 1: 1273. 1993) belongs here but was not validly published because no Latin description was provided and no type was indicated (*Vienna Code*, Art. 36.1 and 37.1).

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