

VISCACEAE

槲寄生科 hu ji sheng ke

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Shrubs or herbs, sometimes aerial hemiparasites on other seed plants, never with external runners, sometimes spreading within host (in *Arceuthobium*); nodes articulated, often enlarged, glabrous, except sometimes inflorescences. Leaves opposite, often reduced to scales; stipules absent; petiole often indistinct; leaf blade, when present, simple, mostly palmately 3–5-veined, margin entire. Inflorescences terminal or axillary, in spikes or cymes, sometimes a solitary flower; bracts inconspicuous. Flowers unisexual (plants dioecious or monoecious), (2–)3–4-merous, actinomorphic, minute (1–4 mm). Perianth lobes free, valvate. Disk absent. Stamens opposite to perianth lobes, adnate or free; anthers 1–many-loculed, sometimes connate into synandria, dehiscence longitudinal or by several pores. Pollen spheric. Ovary absent in male flowers, inferior in female flowers, 1-loculed, without true ovules, embryo sacs originating from a short placental column, integument absent. Style simple or absent; stigma small. Fruit a berry, with a viscin layer (sticky mucilaginous tissue) inside vascular bundles. Seed 1; testa absent; endosperm starchy; embryo rather large.

About seven genera and 350 species: mainly tropical and subtropical regions; three genera and 18 species (seven endemic) in China.

Kiu Hua-shing. 1988. Viscoideae. In: Kiu Hua-shing & Ling Yeou-ruenn, eds., Fl. Reipubl. Popularis Sin. 24: 139–158.

- 1a. Stems 15–80 cm; leaves well developed or reduced to scales; anthers dehiscent by numerous pores; fruit 4 mm or more, indehiscent 3. *Viscum*
- 1b. Stems 2–15(–20) cm; leaves reduced to scales; anthers dehiscent by single slit or fused into synandrium with single apical pore; fruit mostly less than 4 mm (to 6 mm in *Arceuthobium chinense*), explosively dehiscent.
 - 2a. Stem internodes flattened; scale leaves in 2 ranks; flowers subtended by hairs; anthers fused into synandrium; plants parasitic on angiosperms 1. *Korthalsella*
 - 2b. Stem internodes terete; scale leaves decussate, in 4 ranks; flowers not subtended by hairs; anthers separate; plants parasitic on gymnosperms 2. *Arceuthobium*

1. KORTHALSELLA Tieghem, Bull. Soc. Bot. France 43: 83. 1896.

栗寄生属 li ji sheng shu

Bifaria Tieghem; *Pseudixus* Hayata.

Shrubs or subshrubs parasitic on flowering plants, monoecious. Branches opposite or dichotomous; stem internodes usually flattened, successive internodes in the same plane. Leaves reduced to scales, in 2 ranks, usually fused into a ring. Inflorescence axillary, a cyme, the flowers in each group developing successively to form a dense cluster; peduncle and pedicel ± absent; bracts absent, but flowers subtended by hairs. Male flower globose in mature bud; perianth lobes 3. Anthers sessile, circular, 2-loculed, introrse, connate into a synandrium, dehiscence longitudinal. Pollen grains prolate, semicircular in polar view. Female flower ovoid in mature bud; perianth lobes 3, minute. Placentation free, central. Style absent; stigma nipple-shaped. Berry ellipsoid or pyriform, mostly less than 4 mm, crowned by persistent perianth, exocarps smooth, weakly explosively dehiscent at maturity.

About 25 species: tropical and temperate regions of the Old World (except Europe); one species in China.

1. *Korthalsella japonica* (Thunberg) Engler in Engler & Prantl, Nat. Pflanzenfam., Nachtr. 1: 138. 1897.

栗寄生 li ji sheng

Viscum japonicum Thunberg, Trans. Linn. Soc. London 2: 329. 1794; *Bifaria davidiana* Tieghem; *B. fasciculata* Tieghem; *B. japonica* (Thunberg) Tieghem; *B. opuntia* Merrill, nom. illeg. superfl.; *Korthalsella fasciculata* (Tieghem) Lecomte; *K. japonica* var. *fasciculata* (Tieghem) H. S. Kiu; *K. moniliformis* (Wight & Arnott) Lecomte; *K. opuntia* Merrill, nom. illeg. superfl.; *K. opuntia* var. *fasciculata* (Tieghem) Danser; *Pseudixus japonicus* (Thunberg) Hayata; *Viscum moniliforme* Wight & Arnott (1834), not Blume (1826); *V. opuntia* Thunberg, nom. illeg. superfl.

Plants green, 5–15 cm tall. Branches usually opposite;

stem internodes narrowly obovate or oblanceolate-obovate, 7–17 × (2–)3–6 mm, longitudinally 1-ribbed when dried. Leaves fused into a ring. Inflorescence lateral at node. Male flower greenish, subglobose in bud, ca. 0.5 mm; perianth lobes triangular. Synandrium spheric. Female flower ellipsoid or ovoid in bud, 5–7 mm; perianth lobes triangular, minute. Berry yellowish, ca. 2 × 1.5 mm. Fl. and fr. Jan–Dec.

Forests, scrub, mountain slopes, valleys, islands; 100–700(–2500) m. Fujian, S Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangxi, S Shaanxi, Sichuan, Taiwan, Xizang (Bomi), Yunnan, Zhejiang [Bhutan, India, Indonesia, Japan, Malaysia, Myanmar, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam; E Africa (and Madagascar), Australia, Indian Ocean Islands].

The plants are parasitic on *Adinandra millettii*, *Camellia caudata*, *C. oleifera*, *C. sinensis* var. *assamica*, *Carpinus turczanowii*, *Quercus*

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VISCACEAE

baronii, *Q. setulosa*, *Syzygium buxifolium*, *Tutcheria spectabilis*, and species of *Ilex*, *Rhododendron*, *Symplocos*, and Lauraceae.

This species has often been confused with the more widespread *Korthalsella taenioides* (Commerson ex Candolle) Engler, which differs by having internodes with eight or more longitudinal veins. The Chinese

material belongs to *f. japonica*. The form *f. rubra* (Tieghem) Molvray, a rather larger plant, commonly more than 15 cm tall with segments more than 10 mm, was first described from Australia and has been recorded from N India and Japan; it could occur in the Flora area. A third form with almost terete segments, *f. grayi* (Barlow) Molvray, is restricted to Australia.

2. ARCEUTHOBIMUM Marschall von Bieberstein, Fl. Taur.-Caucas. 3: 629. 1819–1820, nom. cons.

油杉寄生属 you shan ji sheng shu

Razoumofskyia Hoffmann, nom. rej.

Subshrubs or herbs parasitic on gymnosperms, dioecious. Branches dichotomous or verticillate; stem internodes terete. Leaves reduced to scales, decussate, in 4 ranks, connate. Flowers axillary or terminal on branchlets, decussate or whorled; peduncle absent; pedicel short to nearly absent. Male flower subglobose or ovoid in mature bud; perianth lobes 3 or 4, ± rotate. Anthers sessile, inserted on perianth lobes, circular, 1-loculed, dehiscence transverse; central nectary present. Pollen grains subprolate, 3-lobed to circular in polar section. Female flower ovoid to ellipsoid in mature bud, epigynous; perianth tube short, 2-lobed, adnate to ovary, persistent. Placentation free, central. Style short; stigma obtuse. Berry ovoid or ellipsoid, apex different in texture from base, exocarp smooth, explosively dehiscent at maturity.

About 45 species: temperate and tropical regions of NE Africa, Asia, S Europe, and North America; five species (three endemic) in China.

All members of this genus induce “witches’ brooms,” which cause their hosts to suffer retarded growth and eventually die.

- 1a. Male perianth lobes 4, ca. 1.5 mm in diam.; fruit ovoid, 4–6 mm; parasites of *Keteleeria evelyniana* and *Picea likiangensis* 1. *A. chinense*
- 1b. Male perianth lobes 3(or 4), 1–2 mm in diam.; fruit ellipsoid, 2–4 mm; parasites of *Juniperus*, *Abies*, *Picea*, and *Pinus*.
 - 2a. Parasites of Cupressaceae (*Juniperus*); plants 5–16 cm tall; male flowers 2–2.5 mm in diam. 5. *A. oxycedri*
 - 2b. Parasites of Pinaceae (*Abies*, *Picea*, *Pinus*); plants 2–10 cm tall; male flowers 1.5–2.5 mm in diam.
 - 3a. Plants 5–15(–20) cm tall; branches longer than 1 cm; male flowers 2–2.5 mm in diam., lobes 1–1.5 mm; parasites of *Pinus densata*, *P. yunnanensis*, *P. griffithii* 2. *A. pini*
 - 3b. Plants usually less than 6 cm tall; branches less than 1 cm; male flowers 1.5–2 mm in diam.; parasites of *Picea* or *Abies*.
 - 4a. Parasites of *Picea*; plants 2–6 cm tall; male perianth lobes ovate, ca. 1 mm 3. *A. sichuanense*
 - 4b. Parasites of *Abies*; plants 0.5–4 cm tall; male perianth lobes subtriangular, ca. 1.2 mm 4. *A. tibetense*

1. Arceuthobium chinense Lecomte, Notul. Syst. (Paris) 3: 170. 1915.

油杉寄生 you shan ji sheng

Plants yellowish green or green, 2–8(–12) cm tall. Branches opposite, rarely 3–4(–6)-verticillate; internodes 3–7(–10) mm, base of dominant shoots 1–2 mm in diam. Scale leaves ca. 0.5 mm. Flowers axillary or terminal. Male flower yellow, subglobose in bud, ca. 1 mm, ca. 2 mm in diam. at flowering, with cupular bract; perianth lobes 4, subtriangular, ca. 1.5 mm in diam. Anthers circular, ca. 0.5 mm. Female flower greenish, subglobose in bud, ca. 1 mm; perianth tube ca. 0.8 mm. Style red. Fruiting pedicel 1–1.5 mm. Berry ovoid, 4–6 × 3–4 mm, basal portion glaucous or yellowish green. Fl. Jul–Nov, fr. Oct–Nov next year.

• Coniferous or mixed forests, mountain slopes; 1500–3600 m. Qinghai, SW Sichuan, NW and C Yunnan.

The plants are parasitic on *Keteleeria evelyniana* and *Picea likiangensis*.

2. Arceuthobium pini Hawksworth & Wiens, Brittonia 22: 267. 1970.

高山松寄生 gao shan song ji sheng

Plants greenish yellow or greenish, 5–15(–20) cm tall. Branches opposite, rarely 3–4-verticillate; internodes 5–15 mm, base of dominant shoots 1.5–2.5 mm in diam. Scale leaves 0.5–1.5 mm. Male flowers solitary or paired, terminal on branchlets, yellow, subglobose in bud, ca. 1 mm, 2–2.5 mm in diam. at flowering, with cupular bract; pedicel ca. 0.5 mm; perianth lobes 3(or 4), ovate or elliptic, 1–1.5 mm. Anthers circular, ca. 0.5 mm. Female flower solitary, axillary or terminal on branchlets, greenish, ovoid in bud, ca. 1 mm; perianth tube ca. 0.8 mm. Style red. Fruiting pedicel 1.5–2 mm. Berry ellipsoid, 3–4 × 2–2.5 mm, basal portion greenish yellow. Fl. Apr–Jul, fr. next year Sep–Oct.

• Coniferous or mixed forests, mountain slopes; 2600–3500(–4000) m. SW Sichuan, Xizang, NW Yunnan.

The plants are parasitic on *Pinus densata*, *P. griffithii*, and *P. yunnanensis*.

3. Arceuthobium sichuanense (H. S. Kiu) Hawksworth & Wiens, Novon 3: 156. 1993.

云杉寄生 yun shan ji sheng

VISCACEAE

Arceuthobium pini var. *sichuanense* H. S. Kiu, Acta Phytotax. Sin. 22: 205. 1984.

Plants yellowish green or green, 2–6 cm tall. Branches opposite; internodes 7–8 mm, base of dominant shoots 1–1.5 mm in diam. Scale leaves ca. 1 mm. Male flowers solitary, terminal on branches, yellow, subglobose in bud, ca. 1 mm, 1.5–2 mm in diam. at flowering; pedicel ca. 0.5 mm; perianth lobes 3(or 4), ovate, ca. 1 mm. Anthers circular, ca. 0.3 mm. Female flower solitary, axillary or terminal on branchlets, ovoid in bud. Fruiting pedicel 1–1.5 mm. Berry ellipsoid, 3–4 × 1.5–2 mm, basal portion yellowish. Fl. Jun–Jul, fr. next year Aug–Sep.

Coniferous forests, mountain slopes; 3400–4100 m. Qinghai, Sichuan, Xizang (Biru, Yadong) [Bhutan].

The plants are parasitic on *Picea likiangensis* var. *balfouriana* and *P. spinulosa*.

4. *Arceuthobium tibetense* H. S. Kiu & W. Ren, J. Yunnan For. Coll. 1: 42. 1982.

冷杉寄生 leng shan ji sheng

Plants yellowish green or green, 0.5–4 cm tall. Branches opposite; internodes 2.5–6 mm, base of dominant shoots ca. 1.5 mm in diam. Scale leaves ca. 1 mm. Flowers solitary, terminal or axillary. Male flower yellow, subglobose in bud, ca. 2 mm in diam. at flowering; perianth lobes 3(or 4), subtriangular, ca. 1.2 mm. Anthers circular, ca. 0.5 mm. Female flower subglobose in bud, ca. 1 mm. Fruiting pedicel ca. 1 mm. Berry ellipsoid when young, ca. 2.5 × 1.7 mm, glaucous. Fl. May–Jun, fr. next year Jul–Aug.

• Coniferous forests, mountain slopes; 3200–3400 m. Xizang (Mainling, Nyingchi).

The plants are parasitic on *Abies forrestii* and *A. georgei*.

5. *Arceuthobium oxycedri* (Candolle) Marschall von Bieberstein, Fl. Taur.-Caucas. 3: 629. 1819–1820.

圆柏寄生 yuan bai ji sheng

Viscum oxycedri Candolle in Lamarck & Candolle, Fl. Franç., ed. 3, 4: 274. 1805.

Plants yellowish green or olive green, 5–16 cm tall. Branches opposite, rarely 3–4(–6)-verticillate; internodes 10–15 mm, base of main shoots 1.5–5 mm in diam. Scale leaves ca. 1 mm. Flowers terminal on branchlets. Male flowers solitary or 2–3 together, greenish yellow, ovoid in bud, 1–1.5 mm, 2–2.5 mm in diam. at flowering; perianth lobes 3(or 4), ovate, 1–1.4 mm. Anthers circular, ca. 0.5 mm. Female flower single, axillary or terminal on branchlets, ellipsoid in bud, ca. 1 mm. Fruiting pedicel ca. 1 mm. Berry greenish, ellipsoid when young, 2–3 × 2 mm. Fl. Aug–Sep, fr. next year Sep–Oct.

Coniferous forests, scrub, mountain slopes; 3000–4100 m. Qinghai, Xizang [India, Pakistan, Tajikistan, Turkmenistan; N Africa, SW Asia, S Europe].

The plants are parasitic on species of *Juniperus*, including *J. tibetica* and *J. wallichiana*.

3. VISCUM Linnaeus, Sp. Pl. 2: 1023. 1753.

槲寄生属 hu ji sheng shu

Shrubs parasitic, monoecious or dioecious. Branches opposite, dichotomous, or verticillate; internodes terete or flattened with successive internodes at right angles to each other. Leaves well developed or reduced to scales. Inflorescences axillary or terminal, 1–7-flowered cymes; peduncle short to nearly absent; bracts in pairs, connate, boatlike, forming a navicular involucre, or 1 or 2 beneath each flower. Pedicel absent. Male flower ovoid or ellipsoid in mature bud; perianth lobes usually 4. Anthers sessile, adnate to perianth lobes, rarely connate into synandrium, rotund or elliptic, multiloculed, dehiscence by numerous pores. Pollen grains subspheric to prolate, trilobate-circular in cross section. Female flower ovoid to ellipsoid in mature bud; perianth lobes (3 or 4), usually deciduous. Placentation basal. Style short or absent; stigma nipple-shaped or cushion-shaped. Berry globose, ovoid, or ellipsoid, exocarp smooth or verrucose, indehiscent, usually dispersed by birds.

About 70 species: temperate and tropical regions of the Old World; 12 species (four endemic) in China.

- 1a. Plants dioecious; inflorescences terminal, with stems usually branching immediately below.
- 2a. Leaves reduced, scale-like, 0.5–1 mm; male cymes 3–5-flowered 4. *V. nudum*
- 2b. Leaves well developed, 2–7 cm; male cymes 3-flowered.
- 3a. Leaf blade linear, 0.1–0.4 cm wide, veins indistinct; fruit ovoid, greenish, ca. 4 mm in diam. 3. *V. fargesii*
- 3b. Leaf blade not linear, over 0.7 cm wide, 3–5-veined; fruit globose or ellipsoid, yellowish, orange, reddish, or red, 6–8 mm in diam.
- 4a. Leaf blade elliptic or oblong-lanceolate, 0.7–1.5(–2) cm wide; fruit globose, yellowish, orange, reddish, or red, 6–8 mm in diam. 1. *V. coloratum*
- 4b. Leaf blade usually obovate, 1.5–2.5 cm wide; fruit ellipsoid, yellow, ca. 6 mm in diam. 2. *V. album*
- 1b. Plants monoecious; inflorescences axillary, rarely also terminal at the tips of branchlets.
- 5a. Leaves well developed; base of fruit rounded or contracted into stipe.
- 6a. Cymes 3-flowered, central flower female and lateral flowers male, adventitious flowers absent; fruit subglobose, base contracted into a ca. 1 mm stalk, tuberculate 9. *V. ovalifolium*

VISCACEAE

- 6b. Cymes (3–)5–7-flowered, outermost flowers adventitious; fruit ellipsoid, subglobose, or obovoid, base rounded, smooth.
 7a. Cymes 5–7-flowered, central flower male, lateral 4–6 flowers female; fruit ellipsoid, base rounded, apex obtuse 5. *V. yunnanense*
 7b. Cymes 3–7-flowered, central 1–3 flowers female, lateral 2–4 flowers male; fruit ellipsoid, subglobose, or obovoid; base rounded or contracted.
 8a. Fruit ellipsoid, base slightly rounded; leaf blade elliptic to lanceolate, sometimes falcate 6. *V. monoicum*
 8b. Fruit subglobose or obovoid, base contracted into a slender, 2–4 mm stalk; leaf blade lanceolate or falcate, rarely oblong-ovate 7. *V. multinerve*
 5b. Leaves reduced, scale-like; base of fruit rounded.
 9a. Stem internodes flattened, longitudinally 3–7-ridged, usually over 2.5 mm wide.
 10a. Fruit globose, 3–4 mm in diam., whitish or greenish white; often epiparasitic on species of Loranthaceae 10. *V. articulatum*
 10b. Fruit ellipsoid, sometimes ovoid, 4–5 mm in diam., reddish or yellow; never epiparasitic 12. *V. liquidambaricola*
 9b. Stem internodes subterete or terete, to 2.5 mm wide.
 11a. Seedling with 2–3 pairs of leaves; branchlets flattened; fruit ellipsoid or ovoid, 4–5 mm, smooth 11. *V. diospyrosicola*
 11b. Seedling leafless; branchlets and branchlets rounded; fruit subglobose 3–4 mm, slightly verruculose 8. *V. loranthi*

1. *Viscum coloratum* (Komarov) Nakai, Rep. Veg. Ooryongto, 17. 1919.

槲寄生 hu ji sheng

Viscum album subsp. *coloratum* Komarov, Trudy Imp. S.-Peterburgsk. Bot. Sada 22: 107. 1903; *V. alni-formosanae* Hayata; *V. coloratum* var. *alni-formosanae* (Hayata) Iwata.

Shrubs dioecious, green or yellowish green, 30–80 cm tall. Branching apical, di-, tri-, or polychotomous, terete; internodes 5–10 cm, nodes slightly swollen. Leaves opposite or ternate; petiole short; leaf blade elliptic or oblong-lanceolate, 3–7 × 0.7–1.5(–2) cm, leathery, 3–5-veined, base attenuate, apex obtuse or rounded. Inflorescences terminal. Male inflorescences cymes; peduncle to 5 mm, sometimes almost absent; involucre navicular, 5–7 mm, usually 3-flowered, central flower with 2 bracts or not. Female inflorescences cymose spikes, subsessile or with peduncle 2–3 mm, 3–5-flowered; terminal flower with 2 bracts or not, lateral flowers each with 1 bract; bracts broadly triangular, ca. 1.5 mm. Male flowers ellipsoid-ovoid in bud, ca. 2 mm; perianth lobes 4, triangular, ca. 1 mm. Stigma nipple-shaped. Berry yellowish, reddish, orange, or red, globose, 6–8 mm in diam. Fl. Apr–May, fr. Sep–Nov.

Forests; 500–2200 m. Anhui, Fujian, Gansu, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, Zhejiang [Japan, Korea, E Russia].

The plants have medicinal uses and are parasitic on *Alnus formosana*, *Malus baccata*, *Prunus armeniaca*, *Pterocarya stenoptera*, *Pyrus ussuriensis*, *Quercus mongolica*, *Ulmus pumila*, and species of *Populus*, *Salix*, and *Tilia*.

2. *Viscum album* Linnaeus subsp. ***meridianum*** (Danser) D. G. Long, Notes Roy. Bot. Gard. Edinburgh 40: 129. 1982.

卵叶槲寄生 luan ye hu ji sheng

Viscum album var. *meridianum* Danser, Blumea 4: 274. 1941; *V. costatum* Gamble.

Shrubs dioecious, 30–50 cm tall. Branching apical, dichotomous or polychotomous, terete; internodes 3–7 cm, nodes

swollen. Leaves sessile or subsessile; leaf blade usually obovate, sometimes elliptic to lanceolate, 3–5 × 1.5–2.5 cm, leathery, 3–5(–7)-veined, base cuneate, apex rounded. Inflorescences terminal. Male inflorescences cymes; peduncle ± absent; 3-flowered, central flower with 2 bracts, lateral flowers each with 1 bract; bracts triangular, 2–3 mm. Pedicel ca. 5 mm. Female inflorescences 3–5-flowered cymose spikes; peduncle 1–2 mm; lateral flowers each with 1 bract, terminal flower with 2 bracts or not; bracts triangular, 2–2.5 mm. Male flowers subglobose in bud, ca. 2 mm; perianth lobes 4, triangular. Anthers elliptic. Female flowers ovoid in bud, 2.5–3 mm; perianth lobes triangular, 1.5–2 mm. Stigma nipple-shaped. Berry yellow, ellipsoid, 8 × 6 mm, smooth. Fl. Nov–Mar, fr. Jul–Dec.

Forests; 1300–2700 m. S Xizang (Gyirong, Zayü), Yunnan [Bhutan, NE India, N Myanmar, Sikkim, N Vietnam].

The plants have medicinal uses and are parasitic on *Carpinus monbeigiana*, *Juglans regia*, *Prunus pseudocerasus*, *Sorbus megalocarpa*, and species of *Acer*.

Viscum album var. *album* differs primarily by a globose, greenish white berry. It occurs from Europe through to the Himalayas (Nepal) and could occur in S Xizang; records from the north of the Flora area are mostly misidentifications of *V. coloratum*.

3. *Viscum fargesii* Lecomte, Notul. Syst. (Paris) 3: 173. 1915.

线叶槲寄生 xian ye hu ji sheng

Subshrubs dioecious, 15–50 cm tall. Branching apical, beneath inflorescence, usually dichotomous, terete; internodes (3–)6–11 cm, branchlets slender. Leaves opposite, subsessile, scale-like; leaf blade linear, 2–5 × 0.1–0.4 cm, leathery, veins indistinct, base attenuate, apex obtuse. Inflorescences terminal. Male inflorescences cymes, usually 3-flowered; peduncle ± absent. Female inflorescences cymose spikes; peduncle 2–4 mm; 3–5-flowered, terminal flower with 2 bracts or not, lateral flowers each with 1 bract; bracts triangular, ca. 2 mm. Male flowers subglobose in bud, ca. 3 mm; perianth lobes 4. Female flowers ellipsoid in bud, ca. 1.5 mm; perianth lobes 4, ca. 1 mm. Berry greenish, ovoid, 4.5–5 × ca. 4 mm, smooth. Fl. Jun–

Sep, fr. Jul–Oct.

• Forests, mountain slopes, valleys; 1300–2800 m. S Gansu, E Qinghai, S Shaanxi, S Shanxi, Sichuan.

The plants are parasitic on *Crataegus wilsonii*, *Populus davidiana*, *Ulmus pumila*, and species of *Salix*.

4. *Viscum nudum* Danser, Blumea 4: 275. 1941.

绿茎槲寄生 lü jing hu ji sheng

Shrubs dioecious, green or yellowish green, 30–50 cm tall. Branching apical, beneath inflorescence, dichotomous or trichotomous, terete; internodes 4–8 cm. Leaves reduced to pairs of ± scarious scales, 0.5–1 mm. Inflorescences terminal, cymose spikes; peduncle 2–5 mm; 3–5-flowered, central flower with 2 bracts, lateral flowers each with 1 bract; bracts triangular, ca. 1 mm. Male flowers yellow, ovoid in bud, ca. 3 mm; perianth lobes 4, ovate, apex acute. Anthers elliptic, ca. 1.5 mm. Female flowers ellipsoid-ovoid in bud, 2–2.5 mm; perianth lobes 4, triangular, ca. 0.5 mm. Stigma nipple-shaped. Berry greenish yellow, ovoid, 5–6 × 4 mm, smooth. Fl. and fr. Mar–Dec.

• Forests, mountain slopes; 2000–3800 m. W Guizhou, Sichuan, Yunnan.

The plants have medicinal uses and are parasitic on *Corylus ferox*, *Platycarya strobilacea*, *Prunus persica*, *Pyrus pashia*, *Quercus schottkyana* and species of *Betula*, *Populus*, and *Salix*.

5. *Viscum yunnanense* H. S. Kiu, Acta Phytotax. Sin. 22: 206. 1984.

云南槲寄生 yun nan hu ji sheng

Subshrubs monoecious, ca. 50 cm tall. Branching axillary, opposite, decussate, terete; internodes 2–4.5 cm, longitudinally striate. Leaves opposite; petiole short; leaf blade elliptic or lanceolate, 6–8 × 2–3.5 cm, subleathery, 5-veined, base attenuate, apex obtuse or acuminate. Inflorescences axillary, cymes 2–3 together; peduncle 2–3 mm; 5–7-flowered, central flower male, lateral 4–6 flowers female; involucre navicular, ca. 3 mm, seriate. Pedicel absent. Male flower ovoid in bud, ca. 2 mm; perianth lobes 4, triangular, ca. 1 mm. Female flowers ellipsoid in bud, 2–2.5 mm; perianth lobes 4, triangular, ca. 0.5 mm. Stigma nipple-shaped. Berry yellow, ellipsoid, ca. 5 × 2.5 mm, smooth, base rounded, apex obtuse. Fl. and fr. Apr–Jun.

• Forests, mountain slopes; 900–1000 m. Yunnan (Mengla).

The plants are parasitic on *Macaranga denticulata*.

6. *Viscum monoicum* Roxburgh ex Candolle, Prodr. 4: 278. 1830.

五脉槲寄生 wu mai hu ji sheng

Shrubs monoecious, ca. 40 cm tall. Branches opposite, decussate, or dichotomous, terete; internodes 3.5–6 cm. Leaves opposite; petiole short; leaf blade elliptic to lanceolate, sometimes falcate, usually oblique, 6–8 × 1.5–3.5 cm, subleathery, (3–)5(–7)-veined, base cuneate or attenuate, apex acute or acuminate. Inflorescences axillary, cymes 1–3 together; peduncle 1–2 mm, base with 1–3 pairs of scales; (3–)5(–7)-flowered; central 1–3 flower(s) female, lateral flowers male; involucre

navicular, 3–4 mm, seriate. Pedicel absent. Male flowers ellipsoid in bud, ca. 1 mm; perianth lobes 4. Female flowers clavate or obovoid in bud, ca. 2.5 mm; perianth lobes 4, triangular, 0.7–1 mm. Stigma nipple-shaped. Berry yellowish green, ellipsoid, 5–8 × 2–4 mm, smooth, base slightly rounded, apex truncate. Fl. and fr. Mar–Dec.

Forests, mountain slopes; 700–1400 m. W Guangxi, S Yunnan [Bangladesh, Bhutan, India, Myanmar, Sikkim, Sri Lanka, Thailand, Vietnam].

The plants are parasitic on *Ficus benjamina*, *Osmanthus fragrans*, *Punica granatum*, and species of *Evodia*.

7. *Viscum multinerve* (Hayata) Hayata, Icon. Pl. Formosan. 5: 196. 1915.

柄果槲寄生 bing guo hu ji sheng

Viscum orientale var. *multinerve* Hayata, Bot. Mag. (Tokyo) 20: 72. 1906; *V. stipitatum* Lecomte.

Shrubs monoecious, becoming pendulous, green, 50–70 cm tall. Branches opposite and decussate or dichotomous, terete; internodes 4–6 cm. Leaves opposite; petiole short; leaf blade lanceolate, rarely oblong-ovate, subleathery, 5–7-veined, base attenuate, apex acuminate or acute. Inflorescences axillary, sometimes terminal, cymes 1–3 together; peduncle 2–5 mm; 3–5-flowered, central 1–3 flower(s) female, lateral flowers male; involucre navicular, ca. 2 mm, seriate. Pedicel absent. Male flowers ovoid in bud, ca. 1.5 mm; perianth lobes 4. Female flowers ellipsoid or clavate, 2.5–3 mm; perianth lobes 4, triangular, ca. 1 mm. Stigma nipple-shaped. Berry base narrowed into a slender, 2–4 mm stalk, body greenish yellow, subglobose or obovoid, ca. 4 mm in diam., smooth. Fl. and fr. Apr–Dec.

Forests, mountain slopes; 200–1600 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, S Jiangxi, Taiwan, Yunnan [Nepal, Thailand, Vietnam].

The plants are parasitic on *Castanopsis fabri*, *C. fissa*, *Cinnamomum camphora*, and *Lithocarpus calophyllus*.

8. *Viscum lorantheri* Elmer, Leafl. Philipp. Bot. 8: 3089. 1919.

聚花槲寄生 ju hua hu ji sheng

Subshrubs epiparasitic, monoecious, yellowish green, 15–20 cm tall. Branches usually opposite, decussate, rounded; internodes 1.2–2.5 cm, shorter toward apex (0.4–0.6 cm), slightly longitudinally grooved. Leaves reduced to pairs of ± scarious scales, absent in seedlings. Inflorescences axillary or some cymes fascicled around nodes, 3-flowered, central flower female, lateral flowers male; navicular involucre ca. 1 mm. Male flowers ovoid in bud, ca. 0.7 mm. Female flower ovoid in bud, ca. 1 mm; perianth lobes 4, triangular, 0.3 mm. Stigma nipple-shaped. Berry subglobose, 3–4 mm, slightly verruculose, base rounded. Fl. and fr. Mar–May.

Forests, mountain slopes; 1200–2600 m. Yunnan (Jianchuan, Menghai, Zhongdian) [India, Indonesia, Philippines].

9. *Viscum ovalifolium* Wallich ex Candolle, Prodr. 4: 278. 1830.

瘤果槲寄生 liu guo hu ji sheng

Shrubs monoecious, green, 30–50 cm tall. Branches opposite and decussate or dichotomous, terete; internodes 1.5–3 cm, nodes \pm swollen. Leaves opposite; petiole 2–4 mm; leaf blade ovate, obovate to elliptic, sometimes asymmetric, 3–8.5 \times 1.5–3.5 cm, leathery, 3–5-veined, base attenuate or narrowly cuneate, apex obtuse. Inflorescences axillary, cymes solitary or some fascicled; peduncle 1–1.5 mm; 3-flowered, central flower female, lateral flowers male and usually absent; involucre navicular, ca. 2 mm. Pedicel absent. Male flowers ovoid in bud, ca. 1.5 mm; perianth lobes 4. Female flower ellipsoid in bud, 2.5–3 mm; perianth lobes 4, triangular, ca. 1 mm. Stigma nipple-shaped. Berry with base narrowed into a ca. 1 mm stalk, body yellowish, subglobose, 4–6 mm in diam., tuberculate, becoming smooth. Fl. and fr. Jan–Dec.

Forests, orchards, mangrove swamps; near sea level–1100 m. Guangdong, Guangxi, Hainan, Yunnan [Bhutan, Cambodia, NE India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam].

The plants have medicinal uses and are parasitic on *Bruguiera sexangula*, *Castanea mollissima*, *Citrus grandis*, *Clausena lansium*, *Diospyros kaki*, *Sapindus mukorossi*, *Sonneratia caseolaris*, and *Xylosma congestum*.

10. *Viscum articulatum* N. L. Burman, Fl. Indica, 311. 1768.

扁枝槲寄生 bian zhi hu ji sheng

Aspidixia articulata (N. L. Burmann) Tieghem; *Viscum articulatum* var. *dichotomum* (D. Don) Kurz; *V. dichotomum* D. Don (1825), not Bertero ex Sprengel (1824); *V. nepalense* Sprengel.

Subshrubs often epiparasitic, monoecious, usually becoming pendulous, green, 20–50 cm tall. Branches opposite and decussate or dichotomous, flattened; internodes 1.5–2.5(–4) cm \times 2–3(–3.5) mm, longitudinally 3-ridged. Leaves reduced to pairs of \pm scarious scales. Inflorescences axillary, cymes 1–3 together; peduncle \pm absent; 3-flowered, central flower female, lateral flowers male and often lacking; bracts 2, coalescent, forming a navicular involucre, ca. 1.5 mm. Male flowers globose in bud, 0.5–1 mm; perianth lobes 4. Female flower ellipsoid in bud, 1–1.5 mm; bract annular; perianth lobes 4, triangular, ca. 0.5 mm. Stigma cushion-shaped. Berry whitish or greenish white, globose, 3–4 mm in diam., smooth, base rounded. Fl. and fr. Jan–Dec.

Forests, plains, mountain slopes; 100–1200(–1700) m. Guangdong, Guangxi, Hainan, Yunnan [S and SE Asia, Australia].

The plants are epiparasitic on *Dendrophthoe pentandra*, *Macrosolen cochinchinensis*, *Scurrula parasitica*, and *Taxillus chinensis*; rarely, they are parasitic on *Bischofia javanica* and species of *Castanopsis*, *Dendrotrophe*, and Lauraceae.

This species is recognized here in a rather wide sense for all plants without normal leaves and with distinctly flattened internodes, and globose, greenish white berries, including plants differing widely in stem width, from forms matching the type of *Viscum nepalense* with internodes to 12 mm wide, to more typical forms with internodes less than 3.5 mm wide. More detailed study of populations in the field could identify more taxa than are currently recognized.

11. *Viscum diospyrosicola* Hayata, Icon. Pl. Formosan. 5: 192. 1915.

柿寄生 shi ji sheng

Viscum filipendulum Hayata.

Subshrubs monoecious, usually becoming pendulous, yellowish green, 20–50 cm tall. Branches opposite and decussate or dichotomous, subterete, branchlets flattened; internodes 1.5–2.5(–3.5) cm × 2–2.5 mm, longitudinally 2–3-ridged. Leaves scale-like or 2–3 pairs in seedling, elliptic or oblong-ovate, 1–2 × 0.3–0.6 cm, 3-veined, base cuneate, apex obtuse. Inflorescences axillary, cymes solitary or to 3 together; peduncle ± absent; 3-flowered, central flower female; lateral 2 flowers male, usually only 1 female or male flower; involucre navicular, 1–1.5 mm. Male flowers ovoid in bud, 1–1.5 mm. Anthers circular. Female flower ellipsoid in bud, 1.5–2 mm; bract annular or absent; perianth lobes 4, triangular, ca. 0.5 mm. Stigma nipple-shaped. Berry yellow or orange, ellipsoid or ovoid, 4–5 × 3–4 mm, smooth, base rounded. Fl. and fr. Apr–Dec.

• Forests, plains, mountain slopes, valleys; 100–2100 m. Fujian, S Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Shaanxi, Sichuan, Taiwan, Xizang (Zayü), Yunnan, Zhejiang.

The plants have medicinal uses and are parasitic on *Cinnamomum camphora*, *Diospyros kaki*, *Pyrus pyrifolia*, *Vernicia fordii*, *V. montana*, and species of Fagaceae.

Viscum angulatum Heyne ex Candolle does not occur within the Flora area, and the records from Taiwan are based on misidentifications of *V. diospyrosicola*.

12. *Viscum liquidambaricola* Hayata, Icon. Pl. Formosan. 5: 194. 1915.

枫寄生 feng ji sheng

Viscum articulatum var. *liquidambaricola* (Hayata) S. Rao; *V. bongariense* Hayata; *V. querci-morii* Hayata.

Shrubs monoecious, often ± erect, green or yellowish green, 30–70 cm tall. Branches opposite and decussate or dichotomous; internodes flattened, lowermost becoming terete, 2–4 cm × 4–6(–8) mm, longitudinally 5–7-ridged. Leaves reduced to pairs of ± scarious scales. Inflorescences axillary, cymes 1–3 together; peduncle ± absent; 3-flowered, central flower female, lateral flowers male; bracts 2, coalescent, forming a navicular involucre, 1.5–2 mm. Male flowers globose in bud, ca. 1 mm; anthers circular. Female flower ellipsoid in bud, 2–2.5 mm; bract cupular or absent; calyx ovoid, 1.5–2 mm; perianth lobes 4, triangular ca. 0.5 mm. Stigma nipple-shaped. Berry reddish and ellipsoid, sometimes yellow and ovoid, 5–7 × 4–5 mm, smooth, base rounded. Fl. and fr. Apr–Dec.

Forests, mountain slopes; 200–2500 m. Fujian, S Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangxi, S Shaanxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Bhutan, India, Indonesia, Malaysia, Nepal, Sikkim, Thailand, Vietnam].

The plants have medicinal uses and are parasitic on *Diospyros kaki*, *Liquidambar formosana*, *Vernicia fordii*, *V. montana*, and species of Fagaceae; rarely, they are epiparasitic on species of *Viscum*.

VISCACEAE