

VITACEAE

葡萄科 pu tao ke

Chen Zhiduan (陈之端)¹, Ren Hui (任辉)²; Jun Wen (文军)³

Woody climbers, sometimes vines, rarely small succulent trees, hermaphroditic or polygamo-monoecious to polygamo-dioecious. Stems unarmed, sometimes with conspicuous lenticels, or bark sometimes shredding (in most species of *Vitis*); branches often swollen at 3–7-lacunar nodes; pith continuous or interrupted by diaphragms at nodes; tendrils simple, bifurcate to trifurcate, or 4–12-branched (in *Parthenocissus*), usually leaf-opposed, rarely tendrils absent. Raphide sacs present in parenchymatous tissues. Leaves simple, lobed or unlobed, or digitately or pedately compound to 1–3-pinnately compound, alternate, distichous, variously toothed, commonly with multicellular, stalked, caducous spherical structures known as “pearl” glands; stipules 2 or rarely absent, often caducous. Flowers small, with prophylls, in panicles, corymbs, or rarely spikes, often leaf-opposite, pseudo-terminal, or axillary (in *Cayratia* and *Tetrastigma*), actinomorphic, hypogynous, 4- or 5(–7 as in *Rhoicissus*)-merous. Calyx with 4 or 5(–7) small teeth or lobes or a continuous ring. Petals valvate, 4 or 5(–7), free or basally connate, or distally connate forming a calyptra (e.g., in *Vitis*). Stamens 4 or 5(–7), antepetalous; anthers introrse, dehiscing longitudinally, tetrasporangiate or rarely bisporangiate. Floral disk intrastaminal, ring-shaped, cupular, or gland-shaped. Ovary superior, 2-loculed; ovules 2 per locule; placentation axile, appearing nearly basal, apotropous or anatropous, bitegmic, crassinucellar; style simple, connate; stigma discoid or capitate, rarely 4-lobed (*Tetrastigma*), not papillate. Fruit a berry, 1–4-seeded. Seeds endotestal, with an abaxial chalazal knot and an adaxial raphe with 2 furrows, one on each side; embryo straight, small; endosperm oily, proteinaceous, copious, ruminant.

About 14 genera and ca. 900 species: worldwide, but mostly in tropical and subtropical regions; eight genera and 146 species (87 endemic, two introduced) in China.

Li Chaoluan. 1998. Vitaceae (excluding *Leea*). In: Li Chaoluan, ed., Fl. Reipubl. Popularis Sin. 48(2): ii–vii, 1–3, 12–208.

The family is important for grapes, wine, and raisins (especially *Vitis vinifera*, and several other species and hybrids of *Vitis*). There are a few ornamental climbers in the genera *Ampelopsis*, *Cissus*, *Parthenocissus*, and *Tetrastigma*, of which *Parthenocissus tricuspidata* of China and Japan and *P. quinquefolia* of eastern North America are well-known examples. Some plants (e.g., *Ampelopsis japonica*, *Cissus quadrangularis*, and *Tetrastigma hemsleyanum*) are highly regarded medicines.

- 1a. Petals united at apex and shed as a caplike calyptra; inflorescence a compact and paniculate thyrses 8. *Vitis*
- 1b. Petals free.
 - 2a. Inflorescence a loose thyrses or panicle, base subtended by a tendril 7. *Ampelocissus*
 - 2b. Inflorescence a loose dichasium, corymbose cyme, or umbel, base without tendrils.
 - 3a. Flowers usually 5-merous.
 - 4a. Tendril 4–12-branched, tips usually with suckers 1. *Parthenocissus*
 - 4b. Tendril usually 2(or 3)-branched or unbranched, tips without suckers.
 - 5a. Disk inconspicuous; inflorescence a compound dichasium, without reduced inflorescence appearing on tendrils 2. *Yua*
 - 5b. Disk well developed, 5-lobed; inflorescence a corymbose cyme, reduced inflorescence often appearing at tip of tendrils 3. *Ampelopsis*
 - 3b. Flowers usually 4-merous.
 - 6a. Inflorescence leaf-opposed; seeds with an encircling raphe near base 4. *Cissus*
 - 6b. Inflorescence usually axillary or pseudo-axillary, rarely leaf-opposed; seeds with 1 or 2 conspicuous ventral cavities nearly as long as seeds.
 - 7a. Style conspicuous, stigma undivided, slightly expanded 5. *Cayratia*
 - 7b. Style inconspicuous or short, stigma usually 4-divided, rarely irregularly divided 6. *Tetrastigma*

1. PARTHENOCISSUS Planchon in A. Candolle & C. Candolle, Monogr. Phan. 5: 447. 1887, nom. cons.

地锦属 di jin shu

Chen Zhiduan (陈之端); Jun Wen (文军)

Psedera Necker ex E. L. Greene; *Quinaria* Rafinesque (1830), not Loureiro (1790).

Lianas, woody, hermaphroditic. Tendrils racemosely 4–12-branched, young apex expanded or curving, later turning into ad-

¹ Institute of Botany, Chinese Academy of Sciences, 20 Nanxincun, Xiangshan, Beijing 100093, People's Republic of China.

² South China Botanical Garden, Chinese Academy of Sciences, Longdong, Shahe, Guangzhou 510650, People's Republic of China.

³ United States National Herbarium, Department of Botany, National Museum of Natural History, MRC-166, Smithsonian Institution, P.O. Box 37012, Washington, DC 20013-7012, U.S.A.

hese disks or suckers. Leaves simple, 3-foliolate, or palmately 5(–7)-foliolate. Inflorescence a panicle or a loose corymbose polychasium, pseudoterminal. Flowers 5-merous. Calyx cupular, glabrous, 5-dentate. Petals free. Stamens 5. Disk inconspicuous, rarely with 5 nectaries. Style conspicuous. Berry 1–4-seeded. Seeds obovoid, chalazal knot rounded at middle; ventral raphe raised; 2 lateral ventral holes furrowed upward from base to apex; endosperm cross-section M-shaped. $2n = 40$.

About 13 species: Asia, North America; nine species (six endemic, one introduced) in China.

- 1a. Leaves simple, rarely 3-foliolate on lower 2–4 short shoots.
 - 2a. Old branches without woody wings; branchlets glabrous or with sparse, soft hairs; petioles and leaves glabrous or only veins abaxially sparsely pubescent 4. *P. tricuspidata*
 - 2b. Old branches mostly with woody wings; branchlets, petioles, and abaxial leaf surface densely ferruginous pilose, adaxially pubescent 5. *P. suberosa*
- 1b. Leaves palmately compound, 3-foliolate or simple on long branches.
 - 3a. Leaves palmately 5-foliolate; inflorescence a paniculate-polychasium, typically with a well-developed main axis.
 - 4a. Young tendrils with slender, slightly curving apex, but not conspicuously expanded at tip 9. *P. quinquefolia*
 - 4b. Young tendrils with apex expanded as tubercles.
 - 5a. Stem oblate, or with conspicuous 6 or 7 ridges; leaflet adaxial surface conspicuously bullate 7. *P. laetevirens*
 - 5b. Stem with 4 ridges; leaflet surfaces not bullate 8. *P. henryana*
 - 3b. Leaves 3-foliolate, or simple on long branches; inflorescence a panicle or corymbose polychasium.
 - 6a. Inflorescence a racemose polychasium, relatively compact, main axis well developed, nearly as thick as branch subtending it; young apex of tendril slightly expanded as fist-shaped adhesive disks 1. *P. feddei*
 - 6b. Inflorescence a corymbose polychasium, loose, main axis slender; young apex of tendril slender and curving or expanded as ball-shaped adhesive disks.
 - 7a. Leaves of 2 types, 3-foliolate and simple; young apex of tendril expanded to ball-like structures 6. *P. dalzielii*
 - 7b. Leaves mostly 3-foliolate, rarely mixed with 3-lobed, simple leaves; young apex of tendril slender, curving.
 - 8a. Branchlets, petioles, and leaflet veins abaxially sparsely pilose; central leaflet 5–13 × 3–6.5 cm, margin with 6–11 teeth on each side 2. *P. semicordata*
 - 8b. Branchlets, petioles, and leaflets abaxially glabrous or only veins abaxially sparsely pubescent; central leaflet 2.5–5 × 1.5–3 cm, margin with 3–5 teeth on each side 3. *P. chinensis*

1. *Parthenocissus feddei* (H. Léveillé) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 45. 1996.

长柄地锦 chang bing di jin

Vitis feddei H. Léveillé, Repert. Spec. Nov. Regni Veg. 7: 231. 1909.

Branchlets terete; tendrils with 6–11 branches, young apex of tendril slightly expanded as fist-shaped adhesive disks. Leaves small, 3-foliolate, rarely simple, 3-divided; petiole 7.5–15 cm, petiolules 0.5–2.5 cm; central leaflet obovate-elliptic, 6–17 × 3–7 cm, lateral veins 6 or 7 pairs, veinlets raised, base rounded, margin obtusely 6–9-toothed on each side; lateral leaflets ovate-elliptic, base extremely asymmetric, margin with 11–15 obtuse teeth outside and 5–7 teeth inside, apex acuminate or cuspidate. Polychasium terminal or pseudoterminal, with a conspicuous, well-developed axis; peduncle 2–3 cm, glabrous to ferruginous. Pedicel 2–3 mm. Buds ovoid, 2.5–3 mm, apex rounded. Calyx undulately 5-divided. Petals elliptic, 2.3–2.8 mm high, inside apex with ligulate appendages, apex 2- or 3-divided, ca. 1.2 mm, glabrous. Filaments 0.5–1.1 mm; anthers narrowly elliptic, 0.5–0.9 mm. Disk inconspicuous. Ovary ovoid; style conspicuous, slightly thick at base; stigma not expanded. Berry globose, 8–10 mm in diam. Seeds 1 or 2, obovoid-elliptic, base rostrate, apex rounded. Fl. Apr–Jul, fr. Aug–Oct.

• Rocky areas in valleys; 600–1100 m. Guangdong, Guizhou, Hubei, Hunan.

“*Parthenocissus feddei* var. *pubescens*” (C. L. Li, Chin. J. Appl. Environ. Biol. 2(1): 45. 1996) was not validly published because no type was indicated.

2. *Parthenocissus semicordata* (Wallich) Planchon in A. Candolle & C. Candolle, Monogr. Phan. 5: 451. 1887.

三叶地锦 san ye di jin

Vitis semicordata Wallich in Roxburgh, Fl. Ind. 2: 481. 1824; *Ampelopsis himalayana* Royle; *Parthenocissus cuspidifera* (Miquel) Planchon var. *pubifolia* C. L. Li; *P. himalayana* (Royle) Planchon; *P. himalayana* var. *rubrifolia* (H. Léveillé & Vaniot) Gagnepain; *P. himalayana* var. *vestita* Handel-Mazzetti; *P. semicordata* var. *rubrifolia* (H. Léveillé & Vaniot) C. L. Li [“*rubifolia*”]; *Psedera himalayana* (Royle) C. K. Schneider; *V. himalayana* (Royle) Brandis; *V. himalayana* var. *semicordata* (Wallich) M. A. Lawson; *V. rubrifolia* H. Léveillé & Vaniot; *V. semicordata* var. *himalayana* (Royle) Kurz ex Hance.

Branchlets terete, sparsely pilose when young, becoming nearly glabrescent; tendrils with 4–6 branches, young apex of tendril curving and slender. Leaves 3-foliolate; petiole 3.5–15 cm, sparsely pubescent; leaflets usually nearly sessile, abaxially pubescent on veins, lateral veins 4–7 pairs, veinlets inconspicuous or slightly raised; central leaflet obovate-elliptic or obovate, 5–13 × 3–6.5 cm, base cuneate, margin 6–11-toothed, apex cuspidate; lateral leaflets ovate-elliptic or oblong, 5–10 × 3–5 cm, base asymmetric, nearly rounded, margin toward outside 7–15-toothed, margin toward inside 4–6-toothed, apex mucronate. Polychasium with inconspicuous main axis; pedun-

cles 1.5–3.5 cm, glabrous or slightly pilose. Pedicel 2–3 mm, glabrous. Buds elliptic, 2–3 mm, apex rounded. Calyx entire. Petals ovate-elliptic, 1.8–2 × ca. 8 mm, glabrous. Filaments 0.6–0.9 mm; anthers ovoid-elliptic, 0.4–0.6 mm. Disk inconspicuous. Ovary nearly spherical; style short; stigma not expanded. Berry 6–8 mm in diam., 1- or 2-seeded. Seeds obovoid, base rostrate, apex rounded. Fl. May–Jul, fr. Aug–Oct.

Forests or shrublands on hillsides; 500–3800 m. Gansu, Guangdong, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Xizang, Yunnan [Bhutan, India, Indonesia, Malaysia, Myanmar, Nepal, Thailand, Vietnam].

3. *Parthenocissus chinensis* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 45. 1996.

小叶地锦 xiao ye di jin

Roots well developed. Branchlets terete, glabrous; tendrils usually 5-branched, young apex curving and slender. Leaves 3-foliolate; petiole 1–4 cm; leaflets with short petiolules or sessile, glabrous or midvein with sparse hairs, lateral veins 3–5 pairs, veinlets conspicuous abaxially but not raised, inconspicuous adaxially; central leaflet obovate-elliptic, 2.5–5 × 1.5–3 cm, base cuneate or broadly so, margin with 3–5 obtuse teeth on each side, apex acuminate; lateral leaflets ovate-elliptic, 1.5–4 × 1.2–2.5 cm, base asymmetric and nearly rounded, margin toward outside with 3–7 obtuse teeth, margin toward inside with 1–3 teeth, apex acute or acuminate. Inflorescence pseudoterminal on short branches, 1–2 cm; peduncle absent or 2–7 mm, glabrous. Pedicel 0.1–0.15 mm, glabrous. Buds ovoid-elliptic, 1.2–2 mm, glabrous, apex rounded. Calyx entire. Petals ovate-elliptic, ca. 0.9 mm. Disk inconspicuous. Ovary ovoid, cone-shaped and attenuate to apex of style; style inconspicuous; stigma not expanded. Berry ca. 6 mm in diam., 1-seeded. Seed obovoid, base obtuse, apex rounded. Fl. May, fr. Aug.

• Dry or semi-dry scrub and rocky hillsides in valleys; 1300–2300 m. SW and W Sichuan, NW Yunnan.

4. *Parthenocissus tricuspidata* (Siebold & Zuccarini) Planchon in A. Candolle & C. Candolle, Monogr. Phan. 5: 452. 1887.

地锦 di jin

Ampelopsis tricuspidata Siebold & Zuccarini, Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 4(2): 196. 1845; *Cissus thunbergii* Siebold & Zuccarini; *Parthenocissus thunbergii* (Siebold & Zuccarini) Nakai; *Pseodera thunbergii* (Siebold & Zuccarini) Nakai; *P. tricuspidata* (Siebold & Zuccarini) Rehder; *Quinaria tricuspidata* (Siebold & Zuccarini) Koehne; *Vitis inconstans* Miquel; *V. taquetii* H. Léveillé; *V. thunbergii* (Siebold & Zuccarini) Druce (1917), not Siebold & Zuccarini (1845).

Branchlets terete, nearly glabrous or sparsely pilose; tendrils 5–9-branched, young apex expanded and ball-shaped. Leaves simple, usually 3-lobed on short branches, or small and unlobed on long branches; petiole 4–12 cm, glabrous or sparsely pubescent; blade obovoid, 4.5–17 × 4–16 cm, abaxially glabrous or midvein abaxially sparsely pubescent, basal veins 5, lateral veins 3–5 pairs on each side, veinlets slightly raised abaxially, inconspicuous adaxially, base cordate, margin with

rough teeth on each side, apex acute. Polychasium 2.5–12.5 cm; rachis inconspicuous; peduncles 1–3.5 cm, nearly glabrous. Pedicel 2–3 mm, glabrous. Buds obovoid-elliptic, 2–3 mm, apex rounded. Calyx entire or undulate. Petals elliptic, 1.8–2.7 mm, glabrous. Filaments 1.5–2.4 mm; anthers ovoid-elliptic, 0.7–1.4 mm. Disk inconspicuous. Ovary oval; style conspicuous, base thick; stigma not enlarged. Berry 1–1.5 cm in diam., 1–3-seeded. Seeds obovoid, base with a sharp, short rostrum, apex rounded. Fl. May–Aug, fr. Sep–Oct. $2n = 40$.

Shrublands, cliffs, rocky hillsides; 100–1200 m. Anhui, Fujian, Hebei, Henan, Jiangsu, Jilin, Liaoning, Shandong, Taiwan, Zhejiang [Japan, Korea].

This species is widely cultivated as an attractive ornamental climber in China and in many other countries. Its roots have been used to cure lumps and ecchymosis.

5. *Parthenocissus suberosa* Handel-Mazzetti, Symb. Sin. 7: 681. 1933 [*“suberosus”*].

栓翅地锦 shuan chi di jin

Parthenocissus tricuspidata (Siebold & Zuccarini) Planchon var. *ferruginea* W. T. Wang.

Branchlets terete, brown pubescent; old branches usually with woody wings; tendrils 5–9-branched, young apex enlarged as ball-shaped adhesive disks. Leaves simple, 3-lobed or rarely undivided; petiole 2–9 cm, densely ferruginous pubescent; blade obovoid, 6–20 × 5–16 cm, abaxially densely ferruginous pubescent, adaxially pubescent, basal veins 5–7 pairs, lateral veins 3–5 pairs, veinlets inconspicuous or slightly raised, lobes triangular, base cordate, margin with large teeth, apex acute. Inflorescence 1.5–5 cm; peduncle 0.7–2.5 cm, ferruginous pilose. Pedicel 0.5–1.5 mm, nearly glabrous. Buds obovoid-elliptic, 3–4 mm, apex rounded. Calyx undulate at margin. Petals elliptic, 2.7–3.7 mm, glabrous. Filaments 0.8–1.5 mm; anthers 1–1.8 mm. Disk inconspicuous. Ovary elliptic; style conspicuous, base slightly enlarged; stigma inconspicuously raised. Berry 0.8–1.1 cm in diam., 1- or 2-seeded. Seeds obovoid, base tapering into a short rostrum, apex rounded. Fl. Jul–Aug, fr. Sep–Oct.

• Cliffs, rocks; 500–1000 m. Guangxi, Guizhou, Hunan, Jiangxi.

6. *Parthenocissus dalzielii* Gagnepain, Notul. Syst. (Paris) 2: 11. 1911.

异叶地锦 yi ye di jin

Cissus landuk Hasskarl, nom. illeg. superfl.; *Landukia landuk* Planchon, nom. illeg. superfl.; *Parthenocissus landuk* Gagnepain, nom. illeg. superfl.; *Vitis landuk* Miquel, nom. illeg. superfl.

Branchlets terete, glabrous; tendrils 5–8-branched, young apex enlarged as somewhat globose adhesive disks. Leaves of two types, simple and small on long branches, usually 3-foliolate on short branches; simple leaves: petiole 5–20 cm, glabrous; blade oval, 3–7 × 2–5 cm, basal veins 3–5, lateral veins 2 or 3 pairs, base cordate or slightly so, margin 4- or 5-toothed on each side, apex acute or acuminate; 3-foliolate leaves: central

petiolule short, 3–10 mm, glabrous; lateral leaflets sessile, ovate-elliptic, 5.5–19 × 3–7.5 cm, base conspicuously asymmetric and subrounded, outer margin 5–8-toothed, apex acuminate; central leaflet oblong, 6–21 × 3–8 cm, with 5 or 6 pairs of lateral veins, veinlets slightly raised, base cuneate, margin 3–8-toothed on each side, apex acuminate. Polychasium pseudoterminal, with inconspicuous rachis, 3–12 cm; peduncles absent to 3 cm, glabrous; bracteoles ovate, 1.5–2 × 1–2 mm, apex acute, glabrous. Pedicel 1–2 mm, glabrous. Buds 2–3 mm, apex rounded. Calyx undulate or subentire. Petals 5, obovate-elliptic, 1.5–2.7 mm, glabrous. Filaments 0.4–0.9 mm; anthers yellow, elliptic or ovoid-elliptic, 0.7–1.5 mm. Disk inconspicuous. Ovary globose; style short; stigma inconspicuously enlarged. Berry black-purple at maturity, 8–10 mm in diam., 1–4-seeded. Seeds obovoid, base acute, apex rounded. Fl. May–Jul, fr. Jul–Nov.

• Forests or shrublands on hillsides or in valleys, cliffs; 200–3800 m. Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Sichuan, Taiwan, Zhejiang.

7. *Parthenocissus laetevirens* Rehder, Mitt. Deutsch. Dendrol. Ges. 21: 190. 1912.

绿叶地锦 lü ye di jin

Branchlets terete or with conspicuous longitudinal ridges, pubescent when young, later glabrescent; tendrils 5–10-branched, with young apex expanded as tubercles. Leaves palmately 5-foliolate; petiole 2–6 cm, pubescent; leaflets with short petiole or nearly sessile, obovate-elliptic or obovate-lanceolate, 2–12 × 1–5 cm, abaxially pubescent on veins, adaxially conspicuously bullate, lateral veins 4–9 pairs, veinlets slightly raised abaxially, inconspicuous adaxially, base cuneate, margin 5–12-toothed, apex acute or acuminate. Panicle polychasium pseudoterminal, 6–15 cm, usually with obvious rachis and degenerative leaflets; peduncle 0.5–4 cm, pubescent. Pedicel 2–3 mm, glabrous. Buds elliptic or slightly obovoid-elliptic, 2–3 mm, apex rounded. Calyx entire. Petals elliptic, 1.6–2.6 mm, glabrous. Filaments 1.4–2.4 mm, base slightly broad; anthers elliptic, 1.6–2.6 mm. Disk inconspicuous. Ovary globose; style conspicuous, base slightly enlarged; stigma inconspicuously expanded. Berry 6–8 mm in diam., 1–4-seeded. Seeds obovoid, base tapering into a short rostrum, apex rounded. Fl. Jul–Aug, fr. Sep–Nov.

• Forests in valleys, shrublands on hillsides; 100–1100 m. Anhui, Fujian, Guangdong, Guangxi, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Zhejiang.

8. *Parthenocissus henryana* (Hemsley) Graebner ex Diels & Gilg, Bot. Jahrb. Syst. 29: 464. 1900.

花叶地锦 hua ye di jin

Branchlets conspicuously quadrangular; tendrils 4–7-branched, with young apex expanded as tubercles. Leaves palmately 5-foliolate; petiole 2.5–8 cm, petiolule 0.3–1.5 cm, glabrous; leaflets obovate, obovate-elliptic, or broadly obovate-lanceolate, 3–10 × 1.5–5 cm, lateral veins 3–6 (or 7) pairs, veinlets slightly raised abaxially, inconspicuous adaxially, base cuneate, margin 2–5 (or 6)-toothed, apex acute, acuminate, or

obtuse. Panicle polychasium pseudoterminal, usually with a conspicuous rachis and degenerative leaflets; peduncle 1.5–9 cm, glabrous. Pedicel 0.5–1.5 mm, glabrous. Buds elliptic or globose, 1–2.2 mm, glabrous, apex rounded. Calyx entire. Petals elliptic, 0.8–2 mm, glabrous. Filaments 0.7–0.9 mm; anthers elliptic, 0.9–1.1 mm. Disk inconspicuous. Ovary ovoid-elliptic; stigma inconspicuous or slightly expanded. Berry 8–10 mm in diam., 1–3-seeded. Seeds obovoid, base rostrate, apex rounded. Fl. May–Jul, fr. Aug–Oct.

• Rocks in valleys or on hillsides, commonly hanging on moist rocky cliffs; 100–1500 m. Chongqing, Gansu, Guangxi, Guizhou, Henan, Hubei, Shaanxi, Sichuan, Yunnan.

1a. Leaves glabrous or sparsely pubescent ... 8a. var. *henryana*

1b. Leaflets abaxially pubescent on veins 8b. var. *hirsuta*

8a. *Parthenocissus henryana* var. *henryana*

花叶地锦(原变种) hua ye di jin (yuan bian zhong)

Vitis henryana Hemsley, J. Linn. Soc., Bot. 23: 132. 1886; *Ampelopsis henryana* (Hemsley) Grignani; *Parthenocissus multiflora* Pampanini; *Psedera henryana* (Hemsley) C. K. Schneider.

Branchlets glabrous. Leaves glabrous or sparsely pubescent. Fl. May–Jul, fr. Jul–Oct.

• Rocky areas in valleys or in forests on hillsides; 100–1500 m. Chongqing, Gansu, Guangxi, Guizhou, Henan, Hubei, Shaanxi, Sichuan, Yunnan.

8b. *Parthenocissus henryana* var. *hirsuta* Diels & Gilg, Bot. Jahrb. Syst. 29: 464. 1900.

毛脉花叶地锦 mao mai hua ye di jin

Leaflets abaxially pubescent on veins. Fl. May–Jun, fr. Jul–Aug.

• Rocks in valleys or on hillsides; 100–1200 m. Henan, Hubei, Shaanxi, Sichuan.

9. *Parthenocissus quinquefolia* (Linnaeus) Planchon in A. Candolle & C. Candolle, Monogr. Phan. 5: 448. 1887.

五叶地锦 wu ye di jin

Hedera quinquefolia Linnaeus, Sp. Pl. 1: 202. 1753; *Ampelopsis quinquefolia* (Linnaeus) Michaux; *Parthenocissus engelmannii* Koehne & Graebner; *P. quinquefolia* f. *engelmannii* (Koehne & Graebner) Rehder; *Psedera quinquefolia* (Linnaeus) Greene; *Quinaria hederacea* Rafinesque, nom. illeg. superfl.; *Vitis quinquefolia* (Linnaeus) Lamarck.

Branchlets terete, glabrous; tendrils 5–9-branched, young apex curving, later developing into suckers. Leaves palmately 5-foliolate; petiole 5–14.5 cm, petiolule short or nearly absent, glabrous; leaflets obovoid, obovate-elliptic, or elliptic, 5.5–15 × 3–9 cm, glabrous or veins abaxially sparsely pilose, lateral veins 5–7 pairs, veinlets inconspicuously raised, base cuneate or broadly cuneate, margin with rough teeth, apex cuspidate. Panicle polychasium pseudoterminal, with conspicuous rachis, 8–20 cm; peduncles 3–5 mm. Pedicel 1.5–2.5 mm, glabrous. Buds elliptic, 2–3 mm, apex rounded. Calyx entire. Petals ellip-

tic, 1.7–2.7 mm, glabrous. Filaments 0.6–0.8 mm; anthers elliptic, 1.2–1.8 mm. Disk inconspicuous. Ovary coniform; stigma not expanded. Berry 1–1.2 cm in diam., 1–4-seeded. Seeds obovoid, base with short, acute rostrum, apex rounded. Fl. Jun–Jul, fr. Aug–Oct. $2n = 40$.

Cultivated throughout China, sometimes escaped and naturalized [native to E North America].

This species is commonly seen as an ornamental in many cities in China and has also been planted along roads and highways in N China for soil conservation.

2. YUA C. L. Li, Acta Bot. Yunnan. 12: 2. 1990.

俞藤属 *yu teng shu*

Chen Zhiduan (陈之端); Jun Wen (文军)

Lianas, woody, hermaphroditic, with lenticels and white pith. Tendrils 2-branched. Leaves palmately pentafoliolate. Compound dichasium leaf-opposed. Flowers 5-merous. Calyx cupular, entire. Petals 5, coherent in bud, opening at anthesis and falling off separately. Stamens usually 5. Disk inconspicuous. Style conspicuous; stigma inconspicuously enlarged. Berry spherical, sweet and sour in taste. Seed flat, pyriform, base rostrate, apex retuse, ventral holes furrowed upward 2/3 from base; cross-section of endosperm M-shaped. $2n = 40^*$.

Two species: China, India, Nepal; two species (one endemic) in China.

- 1a. Leaves papery, margin with fine, sharp teeth, veinlets conspicuous but not raised; fruit 1–1.3 cm in diam. 1. *Y. thomsonii*
 1b. Leaves subleathery, margin with rounded teeth, rarely inconspicuous, veinlets obviously raised when dried; fruit 1.5–2.5 cm in diam. 2. *Y. austro-orientalis*

1. *Yua thomsonii* (M. A. Lawson) C. L. Li, Acta Bot. Yunnan. 12: 5. 1990.

俞藤 *yu teng*

Branchlets brown, terete; young branches slightly ridged; tendrils bifurcate. Leaves papery, palmately 5-foliolate; petiole 2.5–6 cm; leaflets lanceolate or obovate-lanceolate, 2.5–7 × 1.5–3 cm, abaxially usually glaucous, sometimes pubescent on veins, veinlets conspicuous but not raised, lateral veins 4–6 pairs, base cuneate, margin with 4–7 fine, sharp teeth on each side, apex acuminate or caudate-acuminate. Compound dichasium leaf-opposed. Petals (4 or)5, 3–3.5 mm. Stamens (4 or)5; filaments ca. 2.5 mm; anthers elliptic, ca. 1.5 mm. Pistil ca. 3 mm; style slender. Berry black-purple, 1–1.3 cm in diam. Seed 5–6 × ca. 4 mm, apex slightly retuse. Fl. Apr–Jun, fr. Jul–Oct.

Forests on hillsides, on trees, hillsides, valleys, disturbed areas; 200–2700 m. Anhui, SW Fujian, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [India, Nepal].

- 1a. Branchlets, petioles, and peduncles glabrous; leaflets abaxially glabrous or sparsely pubescent on veins 1a. var. *thomsonii*
 1b. Leaflets pubescent at least abaxially on veins 1b. var. *glaucescens*

1a. *Yua thomsonii* var. *thomsonii*

俞藤(原变种) *yu teng (yuan bian zhong)*

Vitis thomsonii M. A. Lawson in J. D. Hooker, Fl. Brit. India 1: 657. 1875 [“*thomsoni*”]; *Cayratia thomsonii* (M. A. Lawson) Suessenguth; *Cissus thomsonii* (M. A. Lawson) Planchon; *Parthenocissus thomsonii* (M. A. Lawson) Planchon; *Psedera thomsonii* (M. A. Lawson) Stuntz.

Branchlets, petioles, adaxial leaflet surface, peduncles, pedicels, and petals glabrous; abaxial leaflet surface glabrous or sparsely pubescent on veins. Fl. May–Jun, fr. Jul–Sep.

Forests on hillsides; 200–1300 m. Anhui, SW Fujian, Guangxi,

SE Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, SE Sichuan, Taiwan, Zhejiang [India, Nepal].

1b. *Yua thomsonii* var. *glaucescens* (Diels & Gilg) C. L. Li, Acta Bot. Yunnan. 12: 6. 1990.

华西俞藤 *hua xi yu teng*

Parthenocissus henryana (Hemsley) Graebner ex Diels & Gilg var. *glaucescens* Diels & Gilg, Bot. Jahrb. Syst. 29: 464. 1900; *Yua chinensis* C. L. Li.

Leaflets pubescent at least abaxially on veins. Fl. Apr–Jun, fr. Aug–Oct.

• Hillsides, valleys; 1700–2700 m. Guizhou, Henan (Lushi), Hubei, Sichuan, Yunnan.

2. *Yua austro-orientalis* (F. P. Metcalf) C. L. Li, Acta Bot. Yunnan. 12: 7. 1990.

大果俞藤 *da guo yu teng*

Parthenocissus austro-orientalis F. P. Metcalf, Bull. Fan Mem. Inst. Biol., n.s., 1: 132. 1948.

Branchlets brownish or gray-brownish, terete, with many lenticels, glabrous; tendrils bifurcate. Leaves subleathery, palmately 5-foliolate; petiole 3–6 cm; petiolules 0.2–1.2 cm, glabrous, central petiolule longer than lateral ones; leaflets obovate-lanceolate or obovate-elliptic, 5–9 × 2–4 cm, glabrous, abaxially usually glaucous, veinlets conspicuously raised when dry, lateral veins 6–9 pairs, base cuneate, margin 2–5-toothed on each side, rarely teeth inconspicuous, apex acute, shortly acuminate, or obtuse. Compound dichasium leaf-opposed, glaucous, glabrous; peduncles 1.5–2 cm. Pedicels 3–6 mm. Buds elliptic, 2–3.5 mm. Petals 5, ca. 3 mm. Filaments 3–3.8 mm; anthers yellow, elliptic, ca. 2 mm. Pistil 2–2.5 mm; style attenuate. Berry 1.5–2.5 cm in diam., amarantine, sweet and sour in taste. Seed slightly flattened, 6–8 × ca. 5 mm. Fl. May–Jul, fr. Oct–Dec.

• Forests or shrublands in valleys; 100–900 m. Fujian, Guangdong, Guangxi, Jiangxi.

3. AMPELOPSIS Michaux, Fl. Bor.-Amer. 1: 159. 1803.

蛇葡萄属 she pu tao shu

Chen Zhiduan (陈之端); Jun Wen (文军)

Lianas, woody, hermaphroditic or polygamo-monoecious. Tendrils 2- or 3-branched. Leaves simple, 1- or 2-pinnately or palmately compound. Inflorescence a corymbose cyme, leaf-opposed or pseudoterminal, often at tips of tendrils. Flowers 5-merous. Calyx saucer-shaped. Petals 5, free. Disk well developed, margin undulately lobed. Stamens 5. Style conspicuous; stigma inconspicuously expanded. Berry spherical, 1–4-seeded. Seed obovoid, base rostrate, apex rounded; cross-section of endosperm M-shaped.

About 30 species: Asia, Central and North America, with most species in E Asia and two species in SW Asia; 17 species (13 endemic) in China.

- 1a. Leaves simple, undivided or 3–5-divided, but not deeply so to base.
- 2a. Branchlets, petioles, and leaf blade glabrous or abaxially with tufts of hairs limited to vein axils.
- 3a. Leaves conspicuously 3–5-divided.
- 4a. Leaves with 3–5 broad lobes (lobed up to middle), notch obtuse or acute 6. *A. humulifolia*
- 4b. Leaves with 3–5 deep lobes, notch rounded 7. *A. acerifolia*
- 3b. Leaves undivided or slightly 3–5-cleft.
- 5a. Leaf margin irregularly toothed, usually with large, elliptic, triangular, or narrowly triangular teeth (to 1 cm) 3. *A. acutidentata*
- 5b. Leaf margin with shallow, broadly triangular teeth.
- 6a. Leaf abaxially pale green, upper two lobes short or inconspicuous 1. *A. bodinieri*
- 6b. Leaf abaxially green, upper two lobes triangular, conspicuous, and slightly extending outward 2. *A. glandulosa*
- 2b. Branchlets, petioles, and leaf blade abaxially pubescent with soft hairs or villous.
- 7a. Leaves 3–5-divided, lobed conspicuously to middle, rarely only slightly lobed or undivided.
- 8a. Pedicels usually 1–1.5 mm, rarely to 2 mm 2. *A. glandulosa*
- 8b. Pedicels 2–3 mm.
- 9a. Leaves elliptic-ovate, usually 5-divided, abaxially with dense grayish hairs 1. *A. bodinieri*
- 9b. Leaves elliptical-pentangular or cordate-pentangular, usually 3-divided with lobes to middle, abaxially with short hairs 6. *A. humulifolia*
- 7b. Leaves undivided or slightly 3–5-cleft.
- 10a. Leaves pentangular-ovate or cordate, 3–5-lobed, margin with large, sharp teeth 2. *A. glandulosa*
- 10b. Leaves ovate or cordate, margin with rounded teeth.
- 11a. Blades undivided, base conspicuously cordate, margin with regular teeth, both surfaces pubescent 2. *A. glandulosa*
- 11b. Blades slightly 3–5-divided, margin with irregular teeth.
- 12a. Upper part of leaves irregularly divided, leaves with dense grayish appressed hairs 4. *A. mollifolia*
- 12b. Upper part of leaves conspicuously 3-lobed, leaves densely scabrous 5. *A. tomentosa*
- 1b. Leaves palmately or pinnately compound.
- 13a. Leaves 3–7-palmate.
- 14a. Branchlets, petioles, or leaf blade abaxially sparsely pubescent; leaves 3- or 5-foliolate.
- 15a. Leaves 3-foliolate, leaflets undivided, or only base of lateral leaflets divided 8. *A. delavayana*
- 15b. Leaves 5-foliolate, leaflets pinnatifidly divided, or margin with coarse teeth 9. *A. aconitifolia*
- 14b. Branchlets, petioles, and leaf blade abaxially glabrous; leaves 3–5-foliolate.
- 16a. Leaflets pinnatipartite, lower half attenuate into wings 10. *A. japonica*
- 16b. Leaflets toothed or lobed at margin, not pinnatipartite 8. *A. delavayana*
- 13b. Leaves pinnate to bipinnate.
- 17a. Branchlets, petioles, and inflorescences glabrous.
- 18a. Leaves green on both surfaces, leaflet margin with large, conspicuous teeth.
- 19a. Tendril trifurcate; leaflets 4–12 × 2–6 cm 11. *A. megalophylla*
- 19b. Tendril bifurcate; leaflets 2–5 × 1–2.5 cm 17. *A. grossedentata*
- 18b. Leaves abaxially strongly glaucous, leaflet margin entire or with fine teeth.
- 20a. Leaflets 2 or 3 pairs, blades 7–15 × 3–7 cm 14. *A. chaffanjonii*
- 20b. Leaflets usually 4–6 pairs, blades 2.5–6 × 1–3.5 cm 16. *A. hypoglauca*
- 17b. Branchlets, petioles, and inflorescence rachises pubescent.
- 21a. Branchlets, petioles, and inflorescence rachises pubescent with short gray hairs; branchlets terete.
- 22a. Dried leaflets light green, margin coarsely toothed, central leaflet ovate-elliptic 11. *A. megalophylla*
- 22b. Dried leaflets abaxially yellowish brown, margin ± undulate, central leaflet obovate or ovate 13. *A. cantoniensis*

- 21b. Branchlets, petioles, rachises, pedicels, and leaflets abaxially ferruginous pilose; branchlets conspicuously 4–6-ridged.
 23a. Leaflets 3.5–14 × 2–6.5 cm, margin 5–15-toothed, abaxially densely ferruginous pilose; berries 8–15 mm in diam. 12. *A. rubifolia*
 23b. Leaflets 3–6 × 0.5–3 cm, margin entire or with 1 to several inconspicuous teeth, midvein abaxially sparsely pilose; berries 5–7 mm in diam. 15. *A. gongshanensis*

1. *Ampelopsis bodinieri* (H. Lévillé & Vaniot) Rehder, J. Arnold Arbor. 15: 23. 1934.

蓝果蛇葡萄 lan guo she pu tao

Branchlets terete, with longitudinal ridges, glabrous; tendrils bifurcate. Leaves simple; petiole 2.5–6 cm, glabrous; leaflets ovate or ovate-elliptic, undivided or slightly 3-lobed, 7–12.5 × 5–12 cm, basal veins 5, lateral veins 4–6 pairs, veinlets inconspicuously raised, base cordate or slightly so, margin with 9–19 sharp teeth, apex cuspidate or acuminate. Compound dichasium loose; peduncle 2.5–6 cm, glabrous. Pedicel 2.5–3 mm, glabrous. Buds elliptic, 2.5–3 mm. Calyx teeth inconspicuous, glabrous, margin undulate. Petals elliptic, 2–2.5 mm. Filaments filiform; anthers yellow, elliptic. Disk 5-lobed. Ovary conical; style slightly enlarged at base. Berry 6–8 mm in diam., 3- or 4-seeded. Seed ovoid-elliptic, slightly flat, rostrum acute, surface smooth, chalazal knot zonate and attenuate, ventral holes furrowed. Fl. Apr–Jun, fr. Jul–Aug.

• Forests or shrublands in valleys or on hillsides; 200–3000 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Shaanxi, Sichuan, Yunnan.

- 1a. Leaves glabrous 1a. var. *bodinieri*
 1b. Leaves abaxially with gray hairs 1b. var. *cinerea*

1a. *Ampelopsis bodinieri* var. *bodinieri*

蓝果蛇葡萄(原变种) lan guo she pu tao (yuan bian zhong)

Vitis bodinieri H. Lévillé & Vaniot, Bull. Soc. Agric. Sarthe 40: 36. 1905; *Ampelopsis micans* Rehder; *V. micans* (Rehder) Bean.

Leaves glabrous.

• Forests in valleys, shrublands on shaded hillsides; 200–3000 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Henan, Hubei, Hunan, Shaanxi, Sichuan, Yunnan.

1b. *Ampelopsis bodinieri* var. *cinerea* (Gagnepain) Rehder, J. Arnold Arbor. 15: 23. 1934.

灰毛蛇葡萄 hui mao she pu tao

Ampelopsis heterophylla (Thunberg) Siebold & Zuccarini var. *cinerea* Gagnepain in Sargent, Pl. Wilson. 1: 101. 1911; *A. micans* var. *cinerea* (Gagnepain) Rehder; *Vitis lyjoannis* H. Lévillé.

Leaves abaxially gray pubescent.

• Forests or shrublands on hillsides; ca. 1300 m. Hunan, Shaanxi, Sichuan.

2. *Ampelopsis glandulosa* (Wallich) Momiyama, Bull. Univ. Mus. Univ. Tokyo 2: 78. 1971.

蛇葡萄 she pu tao

Branchlets terete, with longitudinal ridges; tendrils 2- or 3-branched. Leaves simple, 3–5-cleft, usually mixed with some undivided leaves; petiole 1–7 cm; leaf blade 3.5–14 × 3–11 cm, basal veins 5, lateral veins 4 or 5 pairs, veinlets inconspicuously raised, base cordate, notches nearly obtuse, rarely rounded, margin with acute teeth, apex acute. Peduncle 1–2.5 cm. Pedicel 1–3 mm. Buds ovoid, 1–2 mm, apex rounded. Petals ovate-elliptic, 0.8–1.8 mm. Anthers narrowly elliptic. Lower part of ovary adnate to disk; style slightly enlarged at base. Berry 5–8 mm in diam., 2–4-seeded. Seed narrowly elliptic. Fl. Apr–Aug, fr. Jul–Oct.

Forests in valleys, shrublands on hillsides, on trees or shrubs; below 100–2200 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [India, Japan, Myanmar, Nepal, Philippines, Vietnam].

Ampelopsis brevipedunculata (Maximowicz) Trautvetter f. *puberula* W. T. Wang (Acta Phytotax. Sin. 17(3): 78. 1979), described from Jiangxi, probably belongs here but could not be identified with a particular variety because no material was seen by the authors.

- 1a. Leaves abaxially glabrous or only with tufts of hairs at joints of veins.
 2a. Leaves on flowering branches unlobed 2c. var. *hancei*
 2b. Leaves on flowering branches 5-angular, with 2 conspicuous lobes on upper half 2e. var. *kulingensis*
 1b. Leaves abaxially or only veins pilose or crinite.
 3a. Leaves abaxially ferruginous crinite 2a. var. *glandulosa*
 3b. Leaves abaxially sparsely pilose on veins.
 4a. Leaves cordate, often 3–5-lobed to middle 2b. var. *heterophylla*
 4b. Leaves cordate or sometimes 3–5-lobed 2d. var. *brevipedunculata*

2a. *Ampelopsis glandulosa* var. *glandulosa*

蛇葡萄(原变种) she pu tao (yuan bian zhong)

Vitis glandulosa Wallich in Roxburgh, Fl. Ind. 2: 479. 1824; *Ampelopsis brevipedunculata* (Maximowicz) Trautvetter var. *ciliata* (Nakai) F. Y. Lu; *A. brevipedunculata* var. *vestita* (Rehder) Rehder; *A. glandulosa* var. *ciliata* (Nakai) Momiyama; *A. glandulosa* var. *vestita* (Rehder) Momiyama; *A. heterophylla* (Thunberg) Siebold & Zuccarini var. *ciliata* Nakai; *A. heterophylla* subvar. *wallichii* Planchon; *A. heterophylla* var. *sinica* (Miquel) Merrill; *A. heterophylla* var. *vestita* Rehder; *A. sinica* (Miquel) W. T. Wang; *V. sinica* Miquel.

Branchlets, petioles, abaxial leaf surface, and rachises fer-

ruginous crinite. Pedicel, calyx, and petals ferruginous pubescent. Fl. Jun–Aug, fr. Sep–Jan.

Forests in valleys, shrublands on shaded hillsides; below 100–2200 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei, Henan, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [India, Myanmar, Nepal].

2b. *Ampelopsis glandulosa* var. *heterophylla* (Thunberg) Momiyama, J. Jap. Bot. 52: 30. 1977.

异叶蛇葡萄 yi ye she pu tao

Vitis heterophylla Thunberg in Murray, Syst. Veg., ed. 14, 244. 1784; *Ampelopsis brevipedunculata* var. *heterophylla* (Thunberg) H. Hara; *A. brevipedunculata* var. *maximowiczii* (Regel) Rehder; *A. heterophylla* (Thunberg) Siebold & Zuccarini (1845), not Blume (1825); *A. humulifolia* Bunge var. *heterophylla* (Thunberg) K. Koch; *A. regeliana* Carrière; *V. heterophylla* var. *maximowiczii* Regel.

Branchlets, petioles, and peduncles sparsely pilose. Leaves often 3–5-lobed to middle, cordate or ovate, abaxially sparsely pilose on veins, adaxially glabrous. Pedicel and calyx sparsely pubescent. Petals subglabrate. Fl. Apr–Jun, fr. Jul–Oct.

200–1800 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Shandong, Sichuan, Yunnan, Zhejiang [Japan].

2c. *Ampelopsis glandulosa* var. *hancei* (Planchon) Momiyama, J. Jap. Bot. 52: 30. 1977.

光叶蛇葡萄 guang ye she pu tao

Ampelopsis heterophylla var. *hancei* Planchon in A. Candolle & C. Candolle, Monogr. Phan. 5: 475. 1887; *A. brevipedunculata* var. *hancei* (Planchon) Rehder; *A. sinica* var. *hancei* (Planchon) W. T. Wang.

Branchlets, petioles, and leaves usually glabrous. Leaves on flowering branches unlobed. Fl. Apr–Jun, fr. Aug–Oct.

100–600 m. Fujian, Guangdong, Guangxi, Guizhou, Henan, Hunan, Jiangsu, Jiangxi, Shandong, Sichuan, Taiwan, Yunnan [Japan, Philippines].

2d. *Ampelopsis glandulosa* var. *brevipedunculata* (Maximowicz) Momiyama, J. Jap. Bot. 52: 30. 1977.

东北蛇葡萄 dong bei she pu tao

Cissus brevipedunculata Maximowicz, Mém. Acad. Imp. Sci. St.-Petersbourg Divers Savans 9: 68. 1859; *Ampelopsis brevipedunculata* (Maximowicz) Trautvetter; *A. heterophylla* var. *amurensis* Planchon; *A. heterophylla* var. *brevipedunculata* (Maximowicz) C. L. Li; *C. humulifolia* (Bunge) Regel var. *brevipedunculata* (Maximowicz) Regel; *Vitis brevipedunculata* (Maximowicz) Dippel.

Leaves cordate or slightly 3–5-lobed, abaxially sparsely pilose on veins, adaxially glabrous, margin with obtuse to sharp teeth. Fl. Jul–Aug, fr. Sep–Oct.

• On trees in valleys, on shrubs on hillsides; 100–600 m. Heilongjiang, Jilin, Liaoning.

2e. *Ampelopsis glandulosa* var. *kulingensis* (Rehder) Momiyama, J. Jap. Bot. 52: 31. 1977.

牯岭蛇葡萄 gu ling she pu tao

Ampelopsis brevipedunculata var. *kulingensis* Rehder, Gentes Herb. 1: 36. 1920; *A. heterophylla* var. *kulingensis* (Rehder) C. L. Li.

Plants pubescent to nearly glabrous. Leaves on flowering branches conspicuously 5-angled, upper 2 lobes conspicuously extended. Fl. May–Jul, fr. Aug–Sep.

• Forests in valleys, shrublands on hillsides; 300–1600 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangsu, Jiangxi, Sichuan, Zhejiang.

3. *Ampelopsis acutidentata* W. T. Wang, Acta Phytotax. Sin. 17(3): 78. 1979.

尖齿蛇葡萄 jian chi she pu tao

Branchlets terete, with longitudinal ridges, glabrous; tendrils bifurcate. Leaves simple; stipules caducous; petiole 1.5–4 cm, glabrous; leaf blade ovate, 2.5–7.5 × 3–7 cm, glabrous, basal veins 5, lateral veins 3 or 4 pairs, veinlets inconspicuously raised, base truncate or subtruncate, margin with several, irregular, sharp, acute teeth, apex acute or acuminate. Inflorescence a corymbose polychasium, pseudoterminal or leaf-opposed; peduncle 1.3–3 cm, glabrous. Pedicel 2–3 mm, glabrous. Buds ovoid, 1.5–2 mm, apex rounded. Calyx glabrous, lobed. Petals ovate-elliptic, 1.3–1.8 mm, glabrous. Anthers oval. Ovary adnate to disk at lower part; style conical. Berry 7–8 mm in diam., 1-seeded. Seed obovoid, chalazal knot elliptic. Fl. Jun–Aug, fr. Sep–Oct.

• Shrublands, rocky places on hillsides; 2000–3200 m. Sichuan, Xizang, Yunnan.

4. *Ampelopsis mollifolia* W. T. Wang, Bull. Bot. Res., Harbin 6(4): 21. 1986.

毛叶蛇葡萄 mao ye she pu tao

Branchlets terete, with longitudinal ridges, with dense, long white-grayish hairs. Leaves simple; stipules brown, ovate, ca. 2 × 1–2.5 mm, membranous; petiole 1–2.5 cm, with dense white-grayish crinite hairs; leaf blade ovate, 4–6.5 × 3–6 cm, abaxially densely grayish crinite, adaxially densely pilose, hairs grayish and curly, basal veins 3, lateral veins 3 or 4 pairs, veinlets raised abaxially, inconspicuous adaxially, base broadly cuneate to nearly truncate, margin with 12–16 rounded teeth on each side, apex acute. Inflorescence a polychasium or compound dichasium, leaf-opposed; peduncle 1–2.5 cm, densely gray-white crinite. Pedicel 2–2.5 mm, glabrous. Buds oval, 1.8–2.5 mm, apex rounded. Calyx glabrous, undulately lobed. Petals ovate, 1.6–2.3 mm, glabrous. Anthers oval. Lower part of ovary adnate to disk; style conical. Fl. Jul.

• Riverside shrublands; ca. 1300 m. Sichuan.

5. *Ampelopsis tomentosa* Planchon ex Franchet, Bull. Soc. Bot. France 33: 459. 1886.

绒毛蛇葡萄 rong mao she pu tao

Branchlets terete, with longitudinal ridges. Leaves simple; stipules brown, membranous, caducous; petiole very short, ca. 2 cm; leaf blade 2–5.5 × 2–5 cm, basal veins 3, lateral veins 3 or

4, veinlets inconspicuously raised, base nearly truncate or broadly cuneate, margin with 8–10 obtuse teeth on each side, apex often slightly 3-lobed. Inflorescence a polychasium, leaf-opposed or terminal; peduncle 2–5 cm. Pedicel 1–1.2 mm, glabrous. Buds ovoid, 1.3–1.6 mm, apex rounded. Calyx glabrous. Petals 5. Filaments flat; anthers yellow, ovoid. Style short. Berry 2- or 3-seeded. Seeds triangular-obovoid, surface with raised obtuse ribs, ventral holes short, raphe conspicuous. Fl. Jul, fr. Jun or Sep.

- Forests, grasslands. Yunnan.

1a. Branchlets and leaves scabrous 5a. var. *tomentosa*
1b. Plants glabrous throughout 5b. var. *glabrescens*

5a. *Ampelopsis tomentosa* var. *tomentosa*

绒毛蛇葡萄(原变种) rong mao she pu tao (yuan bian zhong)

Branchlets grayish or grayish brown scabrous. Petiole densely scabrous; leaves abaxially densely gray scabrous, adaxially appressed scabrous. Peduncle densely gray scabrous. Fl. Jul, fr. Sep.

- Forests, grasslands. Yunnan.

5b. *Ampelopsis tomentosa* var. *glabrescens* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 48. 1996.

脱绒蛇葡萄 tuo rong she pu tao

Plants glabrous. Fr. Jun.

- Below 1800 m. Yunnan.

6. *Ampelopsis humulifolia* Bunge, Enum. Pl. China Bor. 12. 1833.

葎叶蛇葡萄 lü ye she pu tao

Ampelopsis heterophylla (Thunberg) Siebold & Zuccarini var. *bungei* Planchon; *A. heterophylla* var. *humulifolia* (Bunge) Merrill; *Cissus davidiana* Carrière; *C. humulifolia* (Bunge) Regel; *Vitis davidiana* (Carrière) N. E. Brown; *V. heterophylla* Thunberg var. *humulifolia* (Bunge) Hooker.

Branchlets terete, with longitudinal ridges, glabrous; tendrils bifurcate. Leaves simple, 3–5-lobed or cleft, rarely mixed with undivided leaves; stipules caducous; petiole 3–5 cm, glabrous or sparsely pilose; leaf blade cordate or roughly so with 5 angles, 6–12 × 5–10 cm, abaxially glabrous or sparsely pilose on veins, base cordate, notch rounded, margin with large, sharp teeth, apex acuminate. Polychasium leaf-opposed; peduncle 3–6 cm, glabrous or sparsely pilose. Pedicel 2–3 mm, appressed pubescent. Buds oval, 1.5–2 mm, apex rounded. Calyx glabrous. Petals elliptic, 1.3–1.8 mm, glabrous. Anthers oval. Lower part of ovary adnate to disk; stigma unexpanded. Berry globose, 6–10 mm in diam., 2–4-seeded. Seeds obovoid. Fl. May–Jul, fr. May–Sep.

- Forests, shrublands; 400–1100 m. Hebei, Henan, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shandong, Shanxi.

7. *Ampelopsis acerifolia* W. T. Wang, Acta Phytotax. Sin. 17(3): 78. 1979.

槭叶蛇葡萄 qi ye she pu tao

Plants slender. Branchlets gray-brown, conspicuously 5-

ridged, glabrous; tendrils bifurcate. Leaves simple; stipules caducous; petiole 1–2.5 cm, glabrous; leaf blade ovate-pentagonal, 0.8–6 × 1–7 cm, glabrous, basal veins 3–5, veinlets inconspicuously raised, margin with 5 deep lobes, notch cordate, lobes lanceolate or narrowly rhombic, apex acuminate. Compound dichasium leaf-opposed; peduncle 2.2–3 cm, glabrous. Pedicel 2–4 mm, glabrous. Buds oval, ca. 3 mm, apex obtuse. Calyx ca. 2.5 mm, glabrous. Anthers oval. Lower part of ovary adnate to disk; style conical. Fl. May.

- About 500 m. Sichuan.

8. *Ampelopsis delavayana* Planchon ex Franchet, Bull. Soc. Bot. France 33: 460. 1886.

三裂蛇葡萄 san lie she pu tao

Branchlets terete, with longitudinal ridges; tendrils 2- or 3-branched. Leaves compound; petiole 3–10 cm; central leaflet petiolate or sessile, lanceolate or elliptic-lanceolate, 5–13 × 2–4 cm, base nearly rounded, apex acuminate; lateral leaflets sessile, ovate-elliptic or ovate-lanceolate, 4.5–11.5 × 2–4 cm, base asymmetric and nearly truncate, margin with coarse, sharp teeth, leaflets with lateral veins 5–7 pairs, veinlets inconspicuous. Polychasium leaf-opposed; peduncle 2–4 cm. Pedicel 1–2.5 mm. Buds ovoid, 1.5–2.5 mm, apex rounded. Petals ovate-elliptic, 1.3–2.3 mm, glabrous. Anthers oval, nearly square. Disk 5-lobed. Lower part of ovary adnate to disk. Berry globose, ca. 8 mm in diam., 2- or 3-seeded. Seeds obovoid, apex rounded. Fl. May–Aug, fr. Jul–Nov.

- Forests, shrublands, hillsides, valleys, fields; below 100–2700 m. Chongqing, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Henan, Hubei, Jiangsu, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Sichuan, Yunnan.

1a. Leaves 3-foliolate.

2a. Branchlets sparsely pubescent, becoming glabrescent 8a. var. *delavayana*

2b. Branchlets densely ferruginous pubescent 8b. var. *setulosa*

1b. Leaves 3–7-foliolate.

3a. Leaves 3–5-foliolate, glabrous 8c. var. *glabra*

3b. Leaves 3–7-foliolate, pubescent .. 8d. var. *tomentella*

8a. *Ampelopsis delavayana* var. *delavayana*

三裂蛇葡萄(原变种) san lie she pu tao (yuan bian zhong)

Ampelopsis heterophylla (Thunberg) Siebold & Zuccarini var. *delavayana* (Planchon ex Franchet) Gagnepain; *Vitis rigida* H. Léveillé & Vaniot.

Branchlets sparsely pubescent, then nearly glabrescent. Leaves 3-foliolate, adaxially sparsely pubescent when young, then glabrescent; lateral leaflets sparsely pilose. Peduncle pubescent. Pedicel appressed pubescent. Fl. Jun–Aug, fr. Sep–Nov.

- Forests, shrublands; below 100–2200 m. Chongqing, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Sichuan, Yunnan.

8b. *Ampelopsis delavayana* var. *setulosa* (Diels & Gilg) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 48. 1996.

毛三裂蛇葡萄 mao san lie she pu tao

Ampelopsis aconitifolia Bunge var. *setulosa* Diels & Gilg, Bot. Jahrb. Syst. 29: 465. 1900; *A. delavayana* var. *gentiliana* (H. Léveillé & Vaniot) Handel-Mazzetti; *A. heterophylla* var. *gentiliana* (H. Léveillé & Vaniot) Gagnepain; *Vitis gentiliana* H. Léveillé & Vaniot.

Branchlets, petioles, and inflorescence densely ferruginous pubescent. Leaves 3-foliolate. Fl. Jun–Jul, fr. Sep–Nov.

• Forests, hillsides; 500–2200 m. Gansu, Guizhou, Hebei, Henan, Shaanxi, Sichuan, Yunnan.

8c. *Ampelopsis delavayana* var. *glabra* (Diels & Gilg) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 48. 1996.

掌裂蛇葡萄 zhang lie she pu tao

Ampelopsis aconitifolia var. *glabra* Diels & Gilg, Bot. Jahrb. Syst. 29: 465. 1900; *A. aconitifolia* f. *glabra* (Diels & Gilg) Kitagawa.

Plants glabrous. Leaves 3–5-foliolate. Fl. May–Jun, fr. Jul–Sep.

• Hillsides, valleys, fields; 300–800 m. Hebei, Henan, Hubei, Jiangsu, Jilin, Liaoning, Nei Mongol, Shandong.

8d. *Ampelopsis delavayana* var. *tomentella* (Diels & Gilg) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 48. 1996.

狭叶蛇葡萄 xia ye she pu tao

Ampelopsis aconitifolia var. *tomentella* Diels & Gilg, Bot. Jahrb. Syst. 29: 465. 1900.

Branchlets, petioles, and leaflets tomentose to pilose. Leaves 3–7-foliolate; leaflets narrow or lanceolate. Fl. May–Jun, fr. Jul–Oct.

• Forests, shrublands; 700–2700 m. Hubei, Sichuan.

9. *Ampelopsis aconitifolia* Bunge, Enum. Pl. China Bor. 12. 1833.

乌头叶蛇葡萄 wu tou ye she pu tao

Branchlets terete, with longitudinal ridges; tendrils 2- or 3-branched. Leaves palmately 5-foliolate; stipules brownish, ovate-lanceolate, ca. 2.3 × 1–2 mm, membranous, glabrous or sparsely pubescent, apex obtuse; petiole 1.5–2.5 cm, glabrous or sparsely pubescent; leaflets nearly sessile; leaf blade lanceolate or rhombic-lanceolate, 4–9 × 1.5–6 cm, lateral veins 3–6 pairs, veinlets inconspicuous, base cuneate, apex acuminate. Compound corymbose dichasium, usually leaf-opposed or pseudoterminal; peduncle 1.5–4 cm, glabrous or sparsely pubescent. Pedicel 1–2.5 mm, nearly glabrous. Buds ovoid, 2–3 mm, apex rounded. Calyx glabrous. Petals oval, 1.7–2.7 mm, glabrous. Anthers oval. Lower part of ovary adnate to disk; style conical. Berry globose, 6–8 mm in diam., 2- or 3-seeded. Seeds obovoid, chalazal knot rounded, raphe attenuate, ventral holes furrowed upward 1/3 from base. Fl. May–Aug, fr. Jul–Sep.

• Shrublands, valleys, grassy areas; 200–2200 m. Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shandong, Shanxi, Sichuan.

1a. Leaflets pinnatifidly 3–5-divided 9a. var. *aconitifolia*

1b. Leaflets mostly undivided 9b. var. *palmiloba*

9a. *Ampelopsis aconitifolia* var. *aconitifolia*

乌头叶蛇葡萄(原变种) wu tou ye she pu tao (yuan bian zhong)

Ampelopsis aconitifolia var. *cuneata* Diels & Gilg; *A. aconitifolia* var. *dissecta* (Carrière) Koehne; *Vitis aconitifolia* (Bunge) Hance; *V. dissecta* Carrière.

Branchlets sparsely pilose. Leaflets pinnatifidly 3–5-divided, central leaflet pinnatifidly, or sometimes lateral leaflets lobed or undivided, abaxially glabrous or only veins sparsely pilose, adaxially glabrous or sparsely pubescent. Fl. May–Jun, fr. Aug–Sep. $2n = 40^*$.

• Shrublands, valleys, grassy areas; 600–1800 m. Gansu, Hebei, Henan, Nei Mongol, Shaanxi, Shanxi.

9b. *Ampelopsis aconitifolia* var. *palmiloba* (Carrière) Rehder, Mitt. Deutsch. Dendrol. Ges. 21: 190. 1912.

掌裂草葡萄 zhang lie cao pu tao

Ampelopsis palmiloba Carrière, Rev. Hort. (Paris) 39: 451. 1867.

Leaflets mostly undivided, margin with large teeth, or mixed with slightly lobed leaves, glabrous or abaxially sparsely pilose. Fl. May–Aug, fr. Jul–Sep.

• Shrublands, valleys; 200–2200 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shandong, Shanxi, Sichuan.

10. *Ampelopsis japonica* (Thunberg) Makino, Bot. Mag. (Tokyo) 17: 113. 1903.

白藜 bai lian

Paullinia japonica Thunberg in Murray, Syst. Veg., ed. 14, 380. 1784; *Ampelopsis mirabilis* Diels & Gilg; *A. napiiformis* Carrière; *A. serianiifolia* Bunge; *A. tuberosa* Carrière; *Cissus serianiifolia* (Bunge) Walpers; *Vitis serianiifolia* (Bunge) Maximowicz.

Branchlets terete, with longitudinal ridges, glabrous; tendrils unbranched or with short branches near tip. Leaves palmate, 3–5-foliolate; stipules caducous; petiole 1–4 cm, glabrous; leaflets pinnatifidly, or margin deeply toothed and not divided, abaxially glabrous or sometimes sparsely pubescent on veins, pinnatifid lobes 0.5–3.5 cm wide, apex acute or acuminate; central leaflet of 5-foliolate leaves deeply divided to base with 1–3 nodes, usually winged between nodes, wing 2–6 mm wide; lateral leaflets not articulate or with 1 node; central leaflets of 3-foliolate leaves with 1 node or without nodes, base tapering, winglike, wing 2–3 mm wide. Polychasium leaf-opposed, 1–2 cm in diam.; peduncle 1.5–5 cm, often tendril-like. Pedicel short or flower nearly sessile, glabrous. Buds ovoid, 1.5–2 mm, apex rounded. Petals oval, 1.2–2.2 mm, glabrous. Anthers oval, nearly square. Lower part of ovary adnate to disk; style shortly claviform. Berry globose, 8–10 mm in diam., glaucous, 1–3-seeded. Seeds obovoid. Fl. May–Jun, fr. Jul–Sep. $2n = 40^*$.

• Shrublands, hillsides, grassy meadows; 100–900 m. Guangdong, Guangxi, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Shaanxi, Shanxi, Sichuan, Zhejiang [cultivated in Japan].

11. *Ampelopsis megalophylla* Diels & Gilg, Bot. Jahrb. Syst. 29: 466. 1900.

大叶蛇葡萄 da ye she pu tao

Branchlets terete; tendrils trifurcate. Leaves bipinnate, with basal pinnae usually 3-foliolate, or rarely pinnately compound; petiole 3–8 cm; central petiolule 1–3 cm, lateral petiolules absent to 1 cm; leaflets oblong or ovate-elliptic, 4–12 × 2–6 cm, lateral veins 4–8 pairs, veinlets slightly raised, base slightly cordate, rounded, or subtruncate, margin 3–15-toothed on each side, apex acuminate. Inflorescence corymbose or a broad compound dichasium, terminal or leaf-opposed; peduncle 3.5–6 cm. Pedicel 2–3 mm. Buds globose, 1–1.5 mm, apex rounded. Calyx glabrous, undulately lobed or lobes triangular. Petals elliptic, 0.7–1.2 mm, glabrous. Anthers elliptic. Lower part of ovary adnate to disk; style conical. Berry slightly obovoid, 6–10 mm in diam., 1–4-seeded. Seeds obovoid, chalazal knot elliptic. Fl. May–Aug, fr. Jul–Oct.

• Forests, shrublands in valleys, mountain slopes, hilltops, valleys; 600–2000 m. Chongqing, Gansu, Guizhou, Hubei, Jiangxi, Shaanxi, Sichuan, Yunnan.

1a. Petiole and peduncle glabrous 11a. var. *megalophylla*
1b. Petiole and peduncle pubescent 11b. var. *jiangxiensis*

11a. *Ampelopsis megalophylla* var. *megalophylla*

大叶蛇葡萄(原变种) da ye she pu tao (yuan bian zhong)

Branchlets, leaves, petioles, peduncles, or pedicels glabrous. Fl. Jun–Aug, fr. Jul–Oct.

• Forests, valleys; 1000–2000 m. Chongqing, Gansu, Guizhou, Hubei, Shaanxi, Sichuan, Yunnan.

11b. *Ampelopsis megalophylla* var. *jiangxiensis* (W. T. Wang) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 48. 1996.

柔毛大叶蛇葡萄 rou mao da ye she pu tao

Ampelopsis jiangxiensis W. T. Wang, Bull. Bot. Res., Harbin 1(1–2): 170. 1981.

Leaves, petioles, peduncles, or pedicels pubescent. Fl. May–Jul.

• Shrublands in valleys; 600–700 m. Jiangxi.

12. *Ampelopsis rubifolia* (Wallich) Planchon in A. Candolle & C. Candolle, Monogr. Phan. 5: 463. 1887.

毛枝蛇葡萄 mao zhi she pu tao

Vitis rubifolia Wallich in Roxburgh, Fl. Ind. 2: 480. 1824; *Ampelopsis megalophylla* Diels & Gilg var. *puberula* W. T. Wang.

Branchlets longitudinally 5–7-ridged, densely curly and ferruginous pilose; tendrils bifurcate. Leaves 1- or 2-pinnate, base of bipinnate leaf usually 3-foliolate; petiole 1–8 cm, densely curly and ferruginous pilose; petiolule absent to 1.5 cm; leaflets ovate-elliptic or oval, 3.5–14 × 2–6.5 cm, abaxially densely ferruginous pilose, then less so, adaxially pubescent

when young, then glabrescent, lateral veins 5–7 pairs, veinlets raised abaxially, inconspicuous adaxially, base slightly cordate or rounded, margin 5–15-toothed on each side, apex acute, acuminate, or mucronate. Corymbose polychasium pseudoterminal or leaf-opposed; peduncle 2–6 cm, densely curly and ferruginous pilose. Pedicel 1–1.5 mm, densely ferruginous pilose. Buds oval, 1.5–2 mm, apex rounded. Calyx nearly glabrous. Petals ovate-elliptic, 1.3–1.8 mm, pubescent. Anthers elliptic. Lower part of ovary adnate to disk; style conical. Berry globose, 0.8–1.5 cm in diam., 1–4-seeded. Seeds obovoid, chalazal knot elliptic, raphe raised, surface with raised and obtuse ribs. Fl. Jun–Jul, fr. Sep–Oct.

Forests, shrublands, valleys; 900–1200 m. Guangxi, Guizhou, Hunan, Jiangxi, Sichuan, Yunnan [India].

13. *Ampelopsis cantoniensis* (Hooker & Arnott) K. Koch, Hort. Dendrol. 48. 1853.

广东蛇葡萄 guang dong she pu tao

Cissus cantoniensis Hooker & Arnott, Bot. Beechey Voy. 175. 1833; *Ampelopsis leeooides* (Maximowicz) Planchon; *Leea theifera* H. Léveillé; *Vitis cantoniensis* (Hooker & Arnott) Seemann; *V. leeooides* Maximowicz (1874), not J. H. Veitch (1904); *V. multijugata* H. Léveillé & Vaniot.

Branchlets terete, with longitudinal ridges, ± pubescent when young; tendrils bifurcate. Leaves bipinnate, or pinnate on upper branches, basal pinnae of bipinnate leaves usually 3-foliolate; petiole 2–8 cm; central petiolule 1–3 cm, lateral petiolules absent to 2.5 cm, sparsely pubescent when young, then glabrescent; leaflets ovate, ovate-elliptic, or oblong, 3–11 × 1.5–6 cm, abaxially sparsely pubescent on veins, then glabrescent, lateral veins 4–7 pairs, veinlets conspicuous but not raised, base truncate, apex acute, acuminate, or cuspidate. Inflorescence corymbose, terminal or leaf-opposed; rachis pubescent; peduncle 2–4 cm, ± sparsely pubescent. Pedicel 1–3 mm, nearly glabrous. Buds oval, 2–3 mm, apex rounded. Calyx glabrous. Petals ovate-elliptic, 1.7–2.7 mm, glabrous. Anthers ovoid-elliptic. Lower part of ovary adnate to disk. Berry globose, 6–8 mm in diam., 2–4-seeded. Seeds obovoid, chalazal knot elliptic, raphe raised, surface with ribs, ventral holes inconspicuous and retuse. Fl. Apr–Jul, fr. Aug–Nov.

Forests or shrublands in valleys; 100–900 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Taiwan, Xizang, Yunnan, Zhejiang [Japan, Malaysia, Thailand, Vietnam].

The leaflets vary greatly in size and shape, even on the same individual.

The intended new combination "*Ampelopsis cantoniensis* var. *leeooides*" [sic] (F. Y. Lu, Fl. Taiwan 3: 667. 1977) was not validly published because no full and direct reference was given to the author and place of valid publication of the basionym, *Vitis leeooides* Maximowicz (Vienna Code, Art. 33.4).

14. *Ampelopsis chaffanjonii* (H. Léveillé & Vaniot) Rehder, J. Arnold Arbor. 15: 25. 1934 ["*chaffanjonii*"].

羽叶蛇葡萄 yu ye she pu tao

Vitis chaffanjonii H. Léveillé & Vaniot, Bull. Soc. Agric. Sarthe 40: 37. 1905 ["*chaffanjonii*"]; *Ampelopsis watsoniana* E. H. Wilson; *Leea dielsii* H. Léveillé; ?*Meliosma cavaleriei* H.

Léveillé; *V. leeoides* J. H. Veitch (1904), not Maximowicz (1874); *V. watsoniana* (E. H. Wilson) Bean.

Branchlets terete, with longitudinal ridges, glabrous; tendrils bifurcate. Leaves pinnate, usually with 2 or 3 pairs of leaflets; petiole 2–4.5 cm; central petiolule 2.5–4.5 cm, lateral petiolules absent to 1.8 cm, glabrous; leaflets oblong or ovate-elliptic, 7–15 × 3–7 cm, glabrous, lateral veins 5–7 pairs, veinlets slightly raised, base rounded or broadly cuneate, margin 5–11-toothed on each side, teeth apiculate and sharp, apex acute or acuminate. Corymbose polychasium terminal or leaf-opposed; peduncle 3–5 cm, glabrous. Pedicel 1.5–2 mm, glabrous. Buds oval, 1.5–2 mm, apex rounded. Calyx triangular, glabrous. Petals ovate-elliptic, 1.2–1.7 mm, glabrous. Anthers ovoid-elliptic. Lower part of ovary adnate to disk; style conical. Berry globose, 8–10 mm in diam., 2- or 3-seeded. Seeds obovoid, base with a short, sharp rostrum, apex rounded, chalazal knot elliptic, with obtuse and raised ribs. Fl. May–Jul, fr. Jul–Sep.

• Forests or shrublands in valleys; 500–2000 m. Anhui, Chongqing, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, Yunnan.

15. *Ampelopsis gongshanensis* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 48. 1996.

贡山蛇葡萄 gong shan she pu tao

Branchlets ferruginous pilose. Leaves pinnate, usually with 3 pairs of leaflets; petiole 2–2.5 cm; central petiolule 1–1.5 cm, lateral petiolules 1–3 mm, ferruginous pilose; leaflets oval or ovate-elliptic, 3–6 × 0.5–3 cm, only abaxially sparsely pilose on midvein, lateral veins 5–7 pairs, veinlets conspicuous abaxially but not raised, veinlets adaxially retuse, base rounded, margin entire or inconspicuously denticulate, apex acuminate. Compound dichasium leaf-opposed. Berry globose, 5–7 mm in diam., 3- or 4-seeded. Seeds obovoid, apex rounded and obtuse, chalazal knot elliptic, obtuse ribs conspicuously raised. Fr. Nov.

• Forests; ca. 1300 m. Yunnan.

16. *Ampelopsis hypoglauca* (Hance) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 48. 1996.

粉叶蛇葡萄 fen ye she pu tao

Hedera hypoglauca Hance, Ann. Bot. Syst. 2: 724. 1852.

Branchlets terete, glabrous; tendrils bifurcate, sometimes apex with reduced trace of inflorescences. Leaves bipinnate, basal pinnae 3-foliolate; stipules caducous; petiole 2–3 cm; leaflets elliptic or ovate-elliptic, 2.5–6 × 1–3.5 cm, glabrous, lateral veins 4 or 5 pairs, veinlets abaxially slightly raised, adaxially inconspicuous, base cuneate or broadly so, margin with 1–5 fine teeth on each side, apex acute or acuminate; central leaflet nearly sessile or shortly petiolulate, glabrous. Corymbose polychasium leaf-opposed; peduncle 1.5–3 cm, glabrous. Pedicel 1.5–3 mm, glabrous. Buds oval, 2–3 mm, apex rounded. Calyx glabrous, entire or undulate. Petals ovate-elliptic, 1.8–2.8 mm, glabrous. Anthers ovoid-elliptic. Lower part of ovary adnate to disk; style filiform. Berry obovoid-elliptic, 8–10 mm in diam., 1–3-seeded. Seeds obovoid, chalazal knot ovate-elliptic, with rounded prominent ribs. Fl. Apr–Jun, fr. Jul–Aug.

• Forests, shrublands; 100–600 m. Fujian, Guangdong, Jiangxi.

17. *Ampelopsis grossedentata* (Handel-Mazzetti) W. T. Wang, Acta Phytotax. Sin. 17(3): 79. 1979.

显齿蛇葡萄 xian chi she pu tao

Ampelopsis cantoniensis (Hooker & Arnott) K. Koch var. *grossedentata* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 59: 105. 1922.

Branchlets terete, with conspicuous and longitudinal ridges, glabrous; tendrils bifurcate. Leaves 1- or 2-pinnate, basal pinnae 3-foliolate; stipules caducous; petiole 1–2 cm, glabrous; leaflets ovate, ovate-elliptic, or oblong, 2–5 × 1–2.5 cm, glabrous, lateral veins 3–5 pairs, veinlets slightly raised, base broadly truncate or nearly rounded, margin with 2–5 teeth on each side, apex acute or acuminate. Corymbose polychasium leaf-opposed; peduncle 1.5–3.5 cm, glabrous. Pedicel 1.5–2 mm, glabrous. Buds oval, 1.5–2 mm, glabrous, apex rounded. Calyx glabrous. Petals oval, 1.2–1.7 mm, glabrous. Anthers oval. Lower part of ovary adnate to disk; style conical. Berry globose, 6–10 mm in diam., 2–4-seeded. Seeds obovoid, chalazal knot elliptic, surface with raised and obtuse ribs. Fl. May–Aug, fr. Aug–Dec.

Forests, shrublands; 200–1500 m. Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Yunnan [Vietnam].

4. CISSUS Linnaeus, Sp. Pl. 1: 117. 1753.

白粉藤属 bai fen teng shu

Ren Hui (任辉); Jun Wen (文军)

Lianas, woody or subwoody, hermaphroditic or polygamo-monoecious. Tendrils unbranched or bifurcate, sometimes racemously branched. Leaves simple or palmately compound. Inflorescence a compound dichasium or an umbel, leaf-opposed. Flowers 4-merous. Calyx cupular, glabrous. Petals falling off separately. Stamens 4. Disk well developed, margin undulate or slightly 4-lobed. Style conspicuous; stigma undivided or 2-divided. Berry obovoid or ellipsoid, 1- or 2-seeded. Seeds obovoid-elliptic or elliptic, base rostrate, apex rounded, chalazal knot at or near base; cross-section of endosperm M-shaped.

About 350 species: mainly in tropical regions of Africa, Asia, Australia, Central and South America, and North America (Mexico); 15 species (two endemic) in China.

Cissus umbellata Loureiro (Fl. Cochinch. 1: 84. 1790) is the basionym of *Strychnos umbellata* (Loureiro) Merrill in the Loganiaceae (see Fl. China 15: 326. 1996).

- 1a. Leaves palmately 5-foliolate 7. *C. elongata*
 1b. Leaves simple.
 2a. Branchlets with 4–6 winglike ridges or narrow wings.
 3a. Branchlets with 6 winglike ridges, tendrils unbranched 2. *C. hexangularis*
 3b. Branchlets with 4 ridges or narrow wings, tendrils bifurcate 9. *C. pteroclada*
 2b. Branchlets terete or slightly 4-ridged.
 4a. Leaf margin 5–12-toothed on each side.
 5a. Tendrils unbranched; leaves oblong or triangular-oblong, base truncate; inflorescence a compound dichasium; seed surface smooth 1. *C. subtetragona*
 5b. Tendrils bifurcate; leaves triangular or cordate-oval, base cordate; inflorescence an umbel; seed surface with sparse raised ridges.
 6a. Branchlets terete; leaves cordate-oval 3. *C. repens*
 6b. Branchlets slightly 4-ridged; leaves hastate 4. *C. luzoniensis*
 4b. Leaf margin 15–44-toothed on each side.
 7a. Tendrils unbranched; leaves undivided or mixed with those 3–5-divided; inflorescence a compound dichasium; seed surface smooth.
 8a. Leaves with 3–5 shallow lobes or undivided 5. *C. kerrii*
 8b. Leaves mostly with 3–5 deep lobes or mixed with undivided ones 6. *C. triloba*
 7b. Tendrils 2- or 3- or racemosely branched; leaves undivided; inflorescence an umbel; seed surface with sparse ridges.
 9a. Tendrils racemosely branched; both leaf surfaces of same color when dry, margin undulate, fine teeth on curves of wavy margin; seed surface without conspicuous ridges 8. *C. repanda*
 9b. Tendrils 2- or 3-branched; both leaf surfaces of different colors when dry, margin serrate, teeth at ends of veins; seed surface with conspicuous ridges.
 10a. Leaves hastate or ovate-hastate, length more than 2 × width; seed surface with obtuse ridges 10. *C. javana*
 10b. Leaves oval or broadly cordate-ovate, length less than 2 × width; seed surface with sharp ridges.
 11a. Leaves glabrous 11. *C. wenshanensis*
 11b. Leaves ± pubescent.
 12a. Leaves abaxially densely brown floccose, or only veins with appressed hairs.
 13a. Ovary glabrous 12. *C. austroyunnanensis*
 13b. Ovary ± pubescent 13. *C. adnata*
 12b. Abaxial leaf surface or midvein ± villous with T-shaped hairs.
 14a. Midvein on abaxial leaf surface ± villous with T-shaped hairs; petals glabrous 14. *C. assamica*
 14b. Leaves abaxially densely villous with T-shaped hairs; petals pubescent 15. *C. aristata*

1. *Cissus subtetragona* Planchon in A. Candolle & C. Candolle, Monogr. Phan. 5: 499. 1887.

四棱白粉藤 si leng bai fen teng

Lianas, woody. Branchlets nearly terete, upper part nearly square in cross-section, longitudinal ridges inconspicuous, glabrous; tendrils unbranched. Leaves simple; stipules caducous; petiole 0.8–3.5 cm, glabrous; leaf blade oblong or triangular-oblong, 6–19 × 2–7 cm, glabrous, basal veins 3, lateral veins 4–6 pairs, veinlets inconspicuous, base nearly truncate, margin with 5–11 fine teeth on each side, apex acuminate or mucronate. Compound dichasium terminal or leaf-opposed; peduncle 1–3 cm, glabrous or with sparse papillary hairs. Pedicel 3–10 cm, nearly glabrous. Buds conical-elliptic, 3–4 mm, apex obtuse. Calyx entire. Petals triangular-oblong, 2–3 mm, glabrous. Anthers ovoid-elliptic. Lower part of ovary adnate to disk; style conical; stigma slightly expanded. Berry 0.8–1.2 cm in diam., 1-seeded. Seed surface smooth, raphe raised, ventral holes very short at base. Fl. Sep–Oct, fr. Oct–Dec.

Forests, shrublands; 100–1300 m. Guangdong, Guangxi, Hainan, Yunnan [Laos, Vietnam].

2. *Cissus hexangularis* Thorel ex Planchon in A. Candolle & C. Candolle, Monogr. Phan. 5: 511. 1887.

翅茎白粉藤 chi jing bai fen teng

Lianas, woody. Branchlets nearly terete, with 6 wings and longitudinal ridges between wings, nodes usually corrugated and contracted when dry, glabrous; tendrils unbranched. Leaves simple; stipules caducous; petiole 1.5–5 cm, glabrous; leaf blade ovate-triangular, 6–10 × 4–8 cm, glabrous, basal veins 3, lateral veins 3 or 4 pairs, veinlets inconspicuous, base truncate or nearly so, margin with 5–8 fine teeth on each side, sometimes teeth inconspicuous, apex mucronate. Compound dichasium terminal or leaf-opposed; peduncle 2–4.5 cm, glabrous. Pedicel 0.3–1 mm, with papillose and glandular hairs. Buds conical, 4–8 mm, apex obtuse. Calyx entire. Petals triangular-elliptic, 2.5–6 mm, glabrous. Lower part of ovary adnate to disk; style conical; stigma slightly expanded. Berry globose, 8–10 mm in diam., 1 (or 2)-seeded. Seed raphe raised, ventral holes short. Fl. Sep–Nov, fr. Dec–Feb of following year.

Riverside forests; 100–400 m. Fujian, Guangdong, Guangxi [Cambodia, Thailand, Vietnam].

3. *Cissus repens* Lamarck, Encycl. 1: 31. 1783.

白粉藤 bai fen teng

Cissus cordata Roxburgh; *C. glauca* Roxburgh; *C. repens* var. *sinensis* Handel-Mazzetti; *Vitis repens* (Lamarck) Wight & Arnott.

Vines, herbaceous. Branchlets terete, with longitudinal ridges, usually glaucous, glabrous; tendrils bifurcate. Leaves simple; stipules brownish, oblong, 5–6 × 2–3 mm, membranous, glabrous; petiole 2.5–7 cm, glabrous; leaf blade cordate-oval, 5–13 × 4–9 cm, glabrous, basal veins 3–5, lateral veins 3 or 4 pairs, veinlets inconspicuous, base cordate, margin with 9–12 sharp teeth on each side, apex acute or acuminate. Inflorescence umbelliform, terminal or leaf-opposed; peduncle 1–3 cm, glabrous. Pedicel 2–4 mm, nearly glabrous. Buds oval, ca. 4 mm, apex obtuse. Calyx entire or undulate. Petals triangular-ovate, ca. 3 mm, glabrous. Anthers ovoid-elliptic. Lower part of ovary adnate to disk; style conical; stigma slightly expanded. Berry 0.8–1.2 cm × 4–8 mm, 1-seeded. Seed surface smooth, with sparse ribs. Fl. Jul–Oct, fr. Nov–May of following year. $2n = 22, 24$.

Forests in valleys, shrublands on hillsides; 100–1800 m. Guangdong, Guangxi, Guizhou, Taiwan, Yunnan [Bhutan, Cambodia, India, Laos, Malaysia, Nepal, Philippines, Thailand, Vietnam; Australia].

4. *Cissus luzoniensis* (Merrill) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 49. 1996.

粉果藤 fen guo teng

Cissus repens Lamarck var. *luzoniensis* Merrill, Philipp. J. Sci., C, 11: 131. 1916.

Vines, herbaceous. Branchlets slender, with longitudinal ridges, slightly 4-ridged, usually glaucous, glabrous; tendrils bifurcate, with one branch poorly developed and short. Leaves simple; stipules brownish, oblong, ca. 3 × 2 mm, membranous, glabrous; petiole 1.5–3 cm, glabrous; leaf blade hastate, 5–11 × 2–4 cm, glabrous, basal veins 3–5, lateral veins 3 or 4 pairs, veinlets inconspicuous, base cordate or nearly truncate, notch obtuse, margin 5–10-toothed on each side, teeth bent forward or slightly backward, apex caudate-acuminate. Inflorescence umbelliform, rarely dichotomous, terminal or leaf-opposed; peduncle 1–2.5 cm, glabrous. Pedicel 1.5–3.5 mm, nearly glabrous. Buds oval, 2–3 mm, apex obtuse. Calyx nearly glabrous, entire or undulately lobed. Petals triangular-ovate, 0.8–1.8 mm, glabrous. Anthers oval. Lower part of ovary adnate to disk; style short; stigma slightly expanded. Berry ca. 1 cm in diam., 1-seeded. Seed surface with sparse ridges, ventral holes inconspicuously linear. Fl. May–Jul, fr. Jul–Aug.

Forests, shrublands; 100–1100 m. Hainan, Yunnan [Philippines].

5. *Cissus kerrii* Craib, Bull. Misc. Inform. Kew 1911: 30. 1911.

鸡心藤 ji xin teng

Cissus modeccoides Planchon var. *kerrii* (Craib) Craib; *C. modeccoides* var. *subintegra* Gagnepain.

Climbers, herbaceous. Branchlets longitudinally obtusely 4-ridged, glaucous, glabrous; tendrils unbranched. Leaves sim-

ple; stipules brownish, oval, 3–4 × 1.5–2 mm, membranous, glabrous; petiole 1.5–7.5 cm, glabrous; leaf blade cordate, 5–11 × 4–8 cm, basal veins 5, sometimes lateral veins connate at base, lateral veins 3 or 4 pairs, veinlets inconspicuous, base cordate, margin 18–23-toothed on each side, teeth fine, apex acuminate, glabrous. Inflorescence umbelliform, terminal or leaf-opposed; peduncle 0.7–2 cm, glabrous. Pedicel 2–4 mm, glabrous. Buds oval, 1–1.5 mm, apex rounded. Calyx entire. Petals elliptic, 0.7–1.2 mm, glabrous. Anthers oval. Lower part of ovary adnate to disk; style conical; stigma slightly expanded. Berry globose, ca. 1 cm, 1-seeded. Seed elliptic, surface with sparse ridges, raphe raised, ventral holes retuse. Fl. Jun–Aug, fr. Sep–Oct.

On trees or shrubs, fields; 100–200 m. Fujian, Guangdong, Guangxi, Hainan, Taiwan, Yunnan [India, Indonesia, Thailand, Vietnam; Australia].

6. *Cissus triloba* (Loureiro) Merrill, Trans. Amer. Philos. Soc., n.s., 24: 254. 1935 [“*trilobus*”].

掌叶白粉藤 zhang ye bai fen teng

Callicarpa triloba Loureiro, Fl. Cochinch. 1: 70. 1790; *Cissus modeccoides* Planchon.

Vines, herbaceous. Branchlets terete, with longitudinal ridges, usually glaucous, glabrous; tendrils unbranched. Leaves simple; petiole 2.5–8 cm, glabrous; stipules oval, 4–6 × 3–4 mm, glabrous; leaf blade heteromorphic, undivided or 3–5-divided, glabrous, basal veins 3–5, lateral veins 5–7 pairs, veinlets slightly raised; undivided leaves oval, 7–7.5 × 5–5.5 cm, base cordate, notch obtuse, margin 20–30-toothed on each side, teeth sharp, apex acute or acuminate; divided leaves broadly ovate, base cordate, deeply 3–5-lobed, notch narrow or two sides overlapping, lobes lanceolate, apex acuminate. Compound dichasium terminal or leaf-opposed; peduncle 3–5.5 cm, glabrous. Pedicel 2–6 mm, glabrous. Buds elliptic or globose, 2–3 mm, apex rounded. Calyx undulately lobed. Petals oval or ovate-elliptic, 1.7–2.7 mm, glabrous. Anthers oval. Lower part of ovary adnate to disk; style conical; stigma slightly expanded. Berry 5–6 mm in diam., 1-seeded. Seed oval, surface smooth, raphe raised, ventral holes slightly furrowed. Fl. Jun–Oct, fr. Aug–Nov.

Forests by rivers or on hillsides; 900–1400 m. Yunnan [Vietnam].

7. *Cissus elongata* Roxburgh, Fl. Ind. 1: 429. 1820.

五叶白粉藤 wu ye bai fen teng

Cayratia elongata (Roxburgh) Suessenguth; *Vitis elongata* (Roxburgh) Wallich ex M. A. Lawson.

Lianas, woody. Branchlets nearly terete, with conspicuous, longitudinal ridges, glabrous; tendrils unbranched. Leaves palmately 5-foliolate; stipules caducous; petiole 6–10 cm, not or shortly petiolulate, glabrous; leaflet blade obovate-lanceolate or obovate-elliptic, 5–15 × 2–5 cm, glabrous, lateral veins 5–9(–12) pairs, veinlets inconspicuous, base cuneate, margin with 7–9 fine teeth on each side, apex cuspidate. Compound dichasium pseudo-terminal or leaf-opposed; peduncle 1.5–2 cm, gla-

brous. Pedicel 2–4 mm, glabrous. Buds elliptic, 2–3 mm, apex subrounded. Calyx undulate at margin. Petals ovate-elliptic, 1.5–2.5 mm, glabrous. Anthers oblong. Lower part of ovary adnate to disk; style conical; stigma slightly expanded. Berry purple-black at maturity, 1.5–2 × 1–1.5 cm, 1-seeded. Seed nearly rounded or retuse at apex, surface smooth, raphe slightly raised, ventral mid-raphé inconspicuous, ventral holes retuse at base. Fl. Jun–Jul, fr. Aug–Nov. $2n = 24$.

Forests, streamsides; 100–1100 m. Guangxi, Hainan, Yunnan [Bhutan, India, Malaysia, Singapore, Vietnam].

8. *Cissus repanda* Vahl, Symb. Bot. 3: 18. 1794.

大叶白粉藤 da ye bai fen teng

Lianas, woody. Branchlets terete, ± with versatile villous hairs; tendrils racemously 5–7-branched. Leaves simple, undivided or slightly 3-lobed; petiole 1.5–9 cm; stipules ovate-elliptic or oval, 2–3 mm, herbaceous, apex rounded; leaf blade ovate-orbicular, 5–15 × 2–5 cm, adaxially with sparse versatile and villous hairs when young, then nearly glabrescent, basal veins 5–7, lateral veins 4 or 5 pairs, veinlets inconspicuously raised or abaxially slightly raised, base cordate, margin with irregular teeth or undulate, fine teeth in curves of wavy margin, apex acuminate, mucronate or acute. Compound umbel terminal or leaf-opposed; peduncle 1.5–3.5 cm. Pedicel 2–6 mm. Buds oval, 2–3 mm, apex rounded. Calyx teeth inconspicuous. Petals oval, 1.7–2.7 mm. Anthers oval, abortive in female flowers. Disk undulately 4-lobed. Lower part of ovary adnate to disk; style conical, base slightly thick; stigma slightly expanded. Berry 6–8 mm, 1-seeded. Seed surface with slightly raised ridges. Fl. Apr–May, fr. May–Jun.

Forests, shrublands, grassy areas; 500–1000 m. Hainan, Sichuan, Yunnan [Bhutan, India, Sri Lanka, Thailand].

- 1a. Leaf blade 9–24 × 8–20 cm 8a. var. *repanda*
1b. Leaf blade 6–9 × 4–6.5 cm 8b. var. *subferruginea*

8a. *Cissus repanda* var. *repanda*

大叶白粉藤(原变种) da ye bai fen teng (yuan bian zhong)

Vitis pallida Wight & Arnott; *V. repanda* (Vahl) Wight & Arnott.

Leaf blade 9–24 × 8–20 cm, abaxially with sparse versatile hairs. Peduncle and pedicels densely pubescent. Petals densely ferruginous villous. Ovary sparsely pilose at apex. Fl. May, fr. Jun. $2n = 26$.

Forests; 500–1000 m. Sichuan, Yunnan [Bhutan, India, Sri Lanka, Thailand].

8b. *Cissus repanda* var. *subferruginea* (Merrill & Chun) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 49. 1996.

海南大叶白粉藤 hai nan da ye bai fen teng

Parthenocissus subferruginea Merrill & Chun, Sunyatsenia 5: 120. 1940.

Leaf blade 6–9 × 4–6.5 cm, abaxially with rubiginous hairs falling off to nearly glabrous or with sparse hairs. Pedun-

cle ± sparsely ferruginous villous. Ovary glabrous. Fl. Apr, fr. May.

- Forests, shrublands, grassy areas. Hainan.

9. *Cissus pteroclada* Hayata, Icon. Pl. Formosan. 2: 107. 1912.

翼茎白粉藤 yi jing bai fen teng

Vitis pteroclada (Hayata) Hayata.

Lianas, herbaceous. Branchlets with 4 wings and longitudinal ridges, glabrous; tendrils bifurcate. Leaves simple; stipules brownish, oval, ca. 1.5 × 1 mm, herbaceous, glabrous, apex obtuse; petiole 2–7 cm, glabrous; leaf blade oval or narrowly oval, 5–12 × 4–9 cm, glabrous, basal veins 5, lateral veins 3 or 4 pairs, veinlets conspicuously raised abaxially, base cordate or subtruncate, notch obtuse and angular, margin with 6–9 fine teeth on each side, apex cuspidate or acute. Inflorescence umbelliform, terminal or leaf-opposed; peduncle 1–2 cm, pubescent. Pedicel 2–4 mm, glabrous. Buds oval, 1.5–3 mm, apex obtuse or rounded. Calyx entire. Petals 4. Anthers oval. Lower part of ovary adnate to disk; style conical, short; stigma slightly expanded. Berry 1–1.5 × 0.8–1.4 cm, 1- or 2-seeded. Seed surface with sharp ridges, chalazal knot at lower part of seed, raphe raised, ventral holes obovate-elliptic upward to top or near middle from base. Fl. Jun–Aug, fr. Aug–Dec.

On trees or shrubs in valleys; 300–2100 m. Fujian, Guangdong, Guangxi, Hainan, Taiwan, Yunnan [Indonesia, Malaysia, Myanmar, Thailand, Vietnam].

10. *Cissus javana* Candolle, Prodr. 1: 628. 1824.

青紫葛 qing zi ge

Cissus discolor Blume; *Vitis discolor* (Blume) Dalzell.

Lianas, herbaceous. Branchlets longitudinally nearly 4-ridged, glabrous or sparsely pubescent; tendrils bifurcate. Leaves simple; stipules oval or ovate-elliptic, 3–5 × ca. 3 mm, herbaceous, glabrous or sparsely pilose, apex obtuse; petiole 2–4.5 cm, glabrous or sparsely pilose; leaf blade hastate or ovate-hastate, 6–15 × 4–10 cm, glabrous, abaxial and adaxial surfaces of different colors when dry, basal veins 5, lateral veins 4–6 pairs, veinlets conspicuous abaxially, base cordate, margin with 15–34 sharp teeth on each side, apex acuminate. Inflorescence umbelliform, terminal or leaf-opposed; peduncle 0.6–4 cm, sparsely pubescent. Pedicel 2–15 mm, subglabrate. Buds elliptic, 2.5–3 mm, apex rounded. Calyx entire or undulately lobed. Petals elliptic, ca. 2.5 mm, glabrous. Anthers ovoid-elliptic. Lower part of ovary adnate to disk; style conical; stigma slightly expanded. Berry ca. 6 × 5 mm, 1-seeded. Seed with a sharp rostrum at base, surface with conspicuous, obtuse ridges, raphe raised, ventral holes obvious. Fl. Jun–Oct, fr. Nov–Dec. $2n = 24$.

On trees or shrubs, brushwood; 600–2000 m. Sichuan, Yunnan [India, Indonesia, Malaysia, Myanmar, Nepal, Thailand, Vietnam].

11. *Cissus wenshanensis* C. L. Li, Acta Bot. Yunnan. 19: 218. 1997.

文山青紫葛 wen shan qing zi ge

Lianas, woody. Branchlets terete, with longitudinal ridges, glabrous; tendrils bifurcate. Leaves simple; stipules oval, membranous; petiole 2.5–4.5 cm, glabrous; leaf blade cordate-oval, 5–5.8 × 3–5.5 cm, glabrous, basal veins 5, lateral veins 3 or 4 pairs, base cordate, notch rounded, margin with 20–27 sharp teeth on each side, apex acuminate. Inflorescence umbelliform, leaf-opposed; peduncle 2–4 cm, glabrous. Pedicel 1–3 mm, glabrous. Buds ovoid-elliptic, 2–2.5 mm, apex rounded. Calyx undulately lobed. Petals oval, 1.5–2 mm, glabrous. Anthers elliptic. Disk 4-lobed. Lower part of ovary adnate to disk, glabrous; style conical; stigma slightly expanded. Fl. Aug.

- Forests; ca. 1500 m. Yunnan.

12. *Cissus austroyunnanensis* Y. H. Li & Y. Zhang, *Guihaia* 9: 28. 1989.

滇南青紫葛 dian nan qing zi ge

Cissus javana Candolle var. *pubescens* C. L. Li.

Lianas, woody. Branchlets terete, with longitudinal ridges, brownish pubescent; tendrils unbranched. Leaves simple; stipules ovate, membranous; petiole 1.5–3.5 cm, with dense brownish hairs; leaf blade cordate-oval, 5–8 × 3.5–6 cm, adaxially with slightly stiff hairs, basal veins 5, lateral veins 3 or 4 pairs, with appressed hairs on veins, base cordate, notch rounded, margin with 35–40 sharp teeth on each side, apex acuminate. Inflorescence umbelliform, leaf-opposed; peduncle 1–2.7 cm, sparsely pubescent. Pedicel 1.5–3 mm, glabrous. Buds ovoid-elliptic, 2–2.5 mm, apex rounded or obtuse. Calyx undulately lobed. Petals oval, ca. 2 mm, glabrous. Anthers elliptic. Lower part of ovary adnate to disk, glabrous; style conical; stigma inconspicuously expanded. Fl. Jul–Aug.

- Forests, shrublands; 1600–2000 m. Yunnan.

13. *Cissus adnata* Roxburgh, *Fl. Ind.* 1: 423. 1820.

贴生白粉藤 tie sheng bai fen teng

Vitis adnata (Roxburgh) Wallich.

Lianas, woody. Branchlets terete, with longitudinal ridges, with dense rubiginous curly hairs; tendrils bifurcate. Leaves simple, both surfaces of same color when dry; stipules ovate-elliptic, 1.5–2 × 1–1.5 mm, apex obtuse; petiole 1.5–7 cm, densely ferruginous pilose; leaf blade cordate-oval, 6–11.5 × 5.5–8.5 cm, abaxially with dense rubiginous curly hairs, adaxially pubescent when young, then hairs falling off and with some hairs only on veins, basal veins 3–5, lateral veins 5 or 6 pairs, veinlets conspicuous abaxially, base cordate, notch rounded or obtuse and angular, margin with 35–40 sharp teeth on each side, apex mucronate, rarely acute. Inflorescence umbelliform, leaf-opposed; peduncle 1.5–4.5 cm, with dense rubiginous curly hairs. Pedicel 1.5–2.5 mm, pubescent. Buds oval, 1.5–2 mm, apex rounded or obtuse. Calyx undulately lobed, pubescent. Petals oval, 1.3–1.7 mm, pubescent. Ovary sparsely pilose; style conical; stigma expanded. Berry 6–7 × 5–6 mm, 1-seeded. Seed surface with sharp ridges, ventral holes short and narrow. Fl. Jun–Jul, fr. Aug–Sep. $2n = 22$.

Forests, shrublands; 500–1600 m. S Yunnan [Cambodia, India, Laos, Myanmar, Nepal, Thailand, Vietnam].

14. *Cissus assamica* (M. A. Lawson) Craib, *Bull. Misc. Inform. Kew* 1911: 31. 1911.

苦郎藤 ku lang teng

Vitis assamica M. A. Lawson in J. D. Hooker, *Fl. Brit. India* 1: 648. 1875.

Lianas, woody. Branchlets terete, with longitudinal ridges, with sparse, appressed and versatile hairs, or nearly glabrous; tendrils bifurcate. Leaves simple; stipules oval, ca. 3 × 2–2.5 mm, herbaceous, nearly glabrous, apex obtuse; petiole 2–9 cm, with sparse, appressed and versatile hairs or glabrescent; leaf blade broadly cordate or cordate-oval, 5–17 × 4–14 cm, abaxially veins with sparse appressed and versatile hairs or glabrescent, basal veins 5, lateral veins 4–6 pairs, veinlets conspicuous abaxially, base cordate, notch rounded or obtuse, margin with 20–44 sharp teeth on each side, apex mucronate or acute. Inflorescence umbelliform, leaf-opposed; peduncle 2–2.5 cm, with sparse, appressed versatile hairs or subglabrate. Pedicel ca. 2.5 mm, with sparse, appressed versatile hairs. Buds oval, 2–3 mm, apex obtuse. Calyx subglabrate, entire or undulate. Petals triangular-oval, 1.5–2 mm, glabrous. Anthers oval. Disk conspicuous, 4-divided. Lower part of ovary adnate to disk; style conical; stigma slightly expanded. Berry purple-black at maturity, 7–10 × 6–7 mm, 1-seeded. Seed surface with sharp and raised ridges, ventral holes short and narrow upward 1/3 from base. Fl. May–Jun, fr. Jul–Oct. $2n = 48$.

Forests or shrublands by rivers; 200–1600 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan [Bhutan, Cambodia, India, Nepal, Thailand, Vietnam].

15. *Cissus aristata* Blume, *Bijdr.* 183. 1825.

毛叶苦郎藤 mao ye ku lang teng

Parthenocissus assamica Craib var. *pilosissima* Gagnepain.

Lianas, woody. Branchlets terete, with longitudinal ridges, with sparse, appressed versatile hairs; tendrils bifurcate. Leaves simple; stipules herbaceous, sparsely pilose; petiole 3–7 cm, with appressed versatile hairs; leaf blade cordate-oval, 4.5–7 × 4–9 cm, abaxially with appressed versatile hairs, adaxially nearly glabrous, basal veins 5, lateral veins 4–6 pairs, veinlets inconspicuous abaxially, base subtruncate or cordate, notch of cordate base obtuse and angular, margin 16–24-toothed on each side, apex acute. Inflorescence umbelliform, leaf-opposed; peduncle 2–3 cm, with appressed versatile hairs. Pedicel 2–2.5 mm, with sparse, appressed versatile hairs. Buds oval, 2–3 mm, apex obtuse. Calyx sparsely pilose, entire. Petals triangular-oval, ca. 2.5 mm, sparsely pubescent. Anthers oval. Lower part of ovary adnate to disk; style conical; stigma slightly expanded. Berry 8–10 × 6–7 mm, 1-seeded. Seed rostrum sharp, surface with raised ridges, ventral holes narrow upward 1/3 from base. Fl. May–Nov, fr. Dec–Feb.

Forests in valleys; 100–1300 m. Hainan, Yunnan [Indonesia, Malaysia, Myanmar, Papua New Guinea, Philippines, Thailand].

5. CAYRATIA Jussieu in Cuvier, Dict. Sci. Nat. 10: 103. 1818, nom. cons.

乌菝莓属 wu lian mei shu

Ren Hui (任辉); Jun Wen (文军)

Lianas, usually woody, hermaphroditic or polygamo-monoecious. Tendrils usually 2- or 3-furcate, rarely racemosely branched. Leaves 3-foliolate or pedately 5-foliolate. Compound dichasium or corymbose polychasium. Flowers 4-merous. Petals 4, spreading, falling off separately. Stamens 4. Disk well developed, 4-lobed or undulately lobed. Style short; stigma slightly or inconspicuously expanded. Berry globose or nearly so, 1–4-seeded. Seeds semiglobose; cross-section of endosperm semicircular or T-shaped.

About 60 species: Africa, Asia, Oceania; 17 species (nine endemic) in China.

Cayratia dichromocarpa (H. Léveillé) Rehder (J. Arnold Arbor. 15: 27. 1934; *Vitis dichromocarpa* H. Léveillé, Repert. Spec. Nov. Regni Veg. 3: 350. 1907), described from Guizhou, and *Cayratia setulosa* (Diels & Gilg) Suessenguth (Mitt. Bot. Staatssamml. München 1: 353. 1953; *Cissus setulosa* Diels & Gilg, Bot. Jahrb. Syst. 29: 466. 1900), described from Chongqing, could not be treated here because no material was seen by the authors.

- 1a. Lower part of inflorescence axis articulate, nodes with bracts; seeds semiglobose, abaxial surface smooth and adaxial surface flat, with a membrane enclosing ventral hole (*C.* subg. *Cayratia*).
 - 2a. Leaves pedate, with 5–7 leaflets.
 - 3a. Leaflets adaxially with appressed hairs, abaxially sparsely pilose 4. *C. pedata*
 - 3b. Leaflets nearly glabrous, abaxially veins sparsely pilose 5. *C. menglaensis*
 - 2b. Leaves 3-foliolate.
 - 4a. Branchlets 1–3 mm in diam.; leaves nearly membranous when dry, sparsely hispidulous, midvein sparsely pilose, petiole 2–3 cm 3. *C. lanceolata*
 - 4b. Branchlets 4–5 mm in diam.; leaves papery, abaxially densely gray pubescent, petiole 8–18 cm.
 - 5a. Lateral leaflets oblong or oblong-lanceolate, base of central leaflet cuneate, margin with conspicuous, fine teeth 1. *C. geniculata*
 - 5b. Lateral leaflets broadly ovate or rhombic-elliptic, base of central leaflet slightly cordate, margin entire or inconspicuously toothed 2. *C. cordifolia*
- 1b. Lower part of inflorescence axis not articulate and without bracts; seeds obovoid-elliptic or triangular-obovate, ventral mid-ridge raised (*C.* subg. *Discypharia*).
 - 6a. Leaves 3-foliolate.
 - 7a. Tendrils racemosely 3–5-branched; leaflets oval or nearly orbicular, margin with rounded teeth, abaxially pubescent 6. *C. trifolia*
 - 7b. Tendrils 2(or 3)-branched; leaflets oblong, ovate, or ovate-rhombic, margin with obtuse teeth, only abaxially sparsely pilose or glabrescent on veins.
 - 8a. Leaflets 7.5–14.5 × 5.5–8 cm; tendrils trifurcate 7. *C. timoriensis*
 - 8b. Leaflets 2–8 × 1.5–4 cm; tendrils bifurcate or trifurcate.
 - 9a. Leaflets oblong or ovate, 4–8 × 2–4 cm; tendrils bifurcate 10. *C. japonica*
 - 9b. Leaflets ovate-rhomboid, 2–5 × 1.5–2.5 cm; tendrils bifurcate or trifurcate 9. *C. maritima*
 - 6b. Leaves pedately 5-foliolate, rarely 3-foliolate.
 - 10a. Leaflets glabrous.
 - 11a. Leaflet apically cuspidate, margin with irregular teeth, teeth slightly bent outward or forward; style and ovary forming a gradual conical structure 8. *C. medogensis*
 - 11b. Leaflet apically acuminate, acute, or rounded, margin with regular teeth; style slender, conspicuously different from ovary with a sharp transition.
 - 12a. Petals apically not corniculate 10. *C. japonica*
 - 12b. Petals apically conspicuously corniculate 16. *C. corniculata*
 - 10b. Leaflets at least abaxially ± pubescent.
 - 13a. Branchlets, peduncles, petioles, and abaxial surface of leaflets brownish and with nodiferous villous hairs.
 - 14a. Leaflets nearly sessile or with very short petiolules; petals apically corniculate, with ciliate margins 15. *C. ciliifera*
 - 14b. Petiolules conspicuous; petals apically not corniculate.
 - 15a. Lateral veins of central leaflet 4–9 pairs, margin (5–)7–14(–17)-toothed on each side 13. *C. oligocarpa*
 - 15b. Lateral veins of central leaflet 13–15 pairs, margin 18–22-toothed on each side 14. *C. fugongensis*
 - 13b. Branchlets, peduncles, petioles, and leaves ± pubescent.
 - 16a. Branchlets, petioles, and abaxial surface of leaflets densely pubescent.
 - 17a. Leaflets abaxially with brownish or grayish brown hairs, margin 4–11-toothed on each side 10. *C. japonica*
 - 17b. Leaflets abaxially with dense grayish white hairs, margin 20–28-toothed on each side 12. *C. albifolia*

- 16b. Branchlets, petioles, and leaflet veins abaxially pilose.
 18a. Leaves pedate, 3–9-foliolate, leaflets or parted lobes lanceolate, obovate-oblong, or narrowly elliptic, petiole usually only 0.3–1 cm 17. *C. cardiospermoides*
 18b. Leaves pedate, with 5 leaflets, or sometimes mixed with 3 leaflets, leaflets elliptic, elliptic-lanceolate, or ovate-elliptic, undivided, petiole usually 2–10 cm.
 19a. Leaflets elliptic or elliptic-lanceolate, veinlets inconspicuous 10. *C. japonica*
 19b. Leaflets ovate-lanceolate, veinlets conspicuously raised 11. *C. daliensis*

1. *Cayratia* subg. *Cayratia*

孔膜亚属 kong mo ya shu

Columella Loureiro (1790), not *Columellia* Ruiz & Pavón (1794), nom. cons.; *Lagenula* Loureiro.

Adaxial surface of seeds with a membrane.

About 15 species: Asia and Oceania; five species (three endemic) in China.

1. *Cayratia geniculata* (Blume) Gagnepain, Notul. Syst. (Paris) 1: 345. 1911.

膝曲乌菟莓 xi qu wu lian mei

Cissus geniculata Blume, Bijdr. 184. 1825; *Columella geniculata* (Blume) Merrill.

Lianas, woody. Branchlets terete, slightly flattened, pubescent; tendrils bifurcate. Leaves 3-foliolate; stipules caducous; petiole 9–18 cm, pubescent; leaflets abaxially densely pubescent or glabrescent, lateral veins 7–9 pairs, veinlets inconspicuous; central leaflet rhombic-elliptic, 10–18 × 5–9 cm, base cuneate, apex caudate or acuminate, rarely acute; lateral leaflets broadly ovate, 9–17 × 4–9 cm, base asymmetric, margin with sparse fine teeth, apex caudate or acuminate. Compound dichasium axillary; peduncle 3–14 cm, pubescent. Pedicel 1–3 mm, pubescent. Buds oval or globose, ca. 2 mm, apex rounded. Calyx cupular, with papillose hairs, margin undulately lobed. Petals oval, 1.5–2 mm, with papillose hairs. Anthers oval. Lower part of ovary adnate to disk; style short; stigma slightly expanded. Berry nearly globose, 8–10 mm in diam., 2–4-seeded. Seeds semiglobose, base rostrate, apex subrounded or retuse, chalazal knot narrower upward, raphe slightly raised, ventral holes 2–4 mm in diam., enveloped by a membrane, margin with ribs. Fl. Jan–May, fr. May–Nov.

Forests in valleys; 300–1000 m. Guangdong, Guangxi, Hainan, Xizang, Yunnan [Indonesia, Laos, Malaysia, Philippines, Vietnam].

2. *Cayratia cordifolia* C. Y. Wu ex C. L. Li, Chin. J. Appl. Environ. Biol. 2: 49. 1996.

心叶乌菟莓 xin ye wu lian mei

Lianas, woody. Branchlets terete, with longitudinal ridges, densely pubescent; tendrils bifurcate. Leaves 3-foliolate; stipules caducous; petiole 8.5–16 cm; central petiolule 6–7 cm, lateral petiolules 2–3.5 cm, densely pubescent; leaflets abaxially densely pubescent or glabrescent, adaxially nearly glabrous, lateral veins 9–12 pairs, veinlets inconspicuously raised; central leaflet obovate-elliptic; lateral leaflets broadly elliptic or rhombic-elliptic, 12–25 × 8–16 cm, base slightly cordate, margin entire or slightly serrate, apex acute or acuminate. Corymbose polychasium axillary; peduncle ca. 11 cm, with nodes at middle. Pedicel 1–2.5 mm, with dense gray hairs. Buds oval or globose, 2–2.5 mm, apex rounded. Calyx saucer-shaped, glabrous,

margin undulate. Petals oval, 1.8–2.3 mm, glabrous. Anthers oval. Stigma slightly expanded. Berry ca. 1.3 cm in diam. Seeds semiglobose, base rostrate, apex rounded, ventral holes elliptic, 5–6 × ca. 4 mm, enveloped by a membrane. Fl. Jun, fr. Oct–Jan of following year.

• Forests in valleys; 100–1100 m. Yunnan.

3. *Cayratia lanceolata* (C. L. Li) J. Wen & Z. D. Chen, Acta Bot. Yunnan. 28: 471. 2006.

狭叶乌菟莓 xia ye wu lian mei

Cayratia mollissima (Wallich) Gagnepain var. *lanceolata* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 50. 1996.

Lianas, woody. Branchlets dark brown, terete, slender, with longitudinal ridges, glabrous; tendrils bifurcate. Leaves 3-foliolate; stipules caducous; petiole 2–3 cm; central petiolule 0.7–2 cm, lateral petiolules short, 3–9 mm, sparsely pilose; leaflets sparsely hispidulous with appressed fine hairs, abaxially sparsely villous on midvein, lateral veins 6–8 pairs, veinlets inconspicuous; central leaflet lanceolate, 6–14 × 1.5–3 cm, base cuneate, rarely subrounded, apex long acuminate; lateral leaflets ovate-lanceolate, 4.5–9.5 × 1.5–2.5 cm, base asymmetric and subrounded, margin with sparse sharp teeth, apex long acuminate. Corymbose polychasium axillary; peduncle 2–8 cm, with nodes and brownish bracts, pubescent. Pedicel 0.5–1 mm, densely pubescent. Buds elliptic, 1–1.5 mm, apex rounded. Calyx saucer-shaped, pubescent, teeth inconspicuous. Petals ovate-elliptic, 0.8–1.3 mm, glabrous. Anthers oval. Lower part of ovary adnate to disk; style slender. Berry 8–10 mm in diam., 2- or 3-seeded. Seeds globose to semiglobose, base rostrate, apex rounded, surface smooth, upper raphe raised, ventral holes rounded, ca. 2 mm in diam., ribs along margin slightly raised. Fl. Apr–May, fr. Jun–Jul.

• Shrublands, disturbed areas at forest margins, roadsides. Hainan.

4. *Cayratia pedata* (Lamarck) Jussieu ex Gagnepain, Notul. Syst. (Paris) 1: 346. 1911.

鸟足乌菟莓 niao zu wu lian mei

Cissus pedata Lamarck, Encycl. 1: 31. 1783; *Cayratia longzhouensis* W. T. Wang; *Columella pedata* Loureiro; *Lagenula pedata* Loureiro.

Lianas, woody. Branchlets terete, with longitudinal ridges,

sparsely pilose; tendrils bifurcate. Leaves pedately 5-foliolate; stipules brownish, ovate-lanceolate, 3–4 × 1.5–3 mm, membranous, sparsely pilose; petiole 5.5–16 cm; central petiolule 1.5–5 cm, lateral petiolules 2–4 cm, petiolules of lateral leaflet complex 1–3.5 cm, sparsely pilose; leaflets abaxially pilose, adaxially with appressed hairs, lateral veins 6–11 pairs, veinlets inconspicuously raised; central leaflet obovate-elliptic; lateral leaflets ovate-elliptic, 5–22 × 2.5–9 cm, base nearly truncate, rounded, or slightly cordate, margin with irregular teeth, apex caudate-acuminate. Corymbose polychasium axillary; peduncle 15–16 cm, with nodes, pilose. Pedicel 2–3 mm, densely pubescent. Buds oval, 2–2.5 mm, apex rounded. Calyx saucer-shaped, pubescent, entire. Petals ovate-elliptic, 1.7–2.2 mm, nearly glabrous. Anthers ovoid-elliptic, poorly developed in female flowers. Disk well developed, margin undulate. Lower part of ovary adnate to disk; style slender; stigma slightly expanded, or cylindrical in male flowers. Berry elliptic, 1.2–1.5 cm in diam., 2- or 3-seeded. Seeds semiglobose, base rounded, apex subrounded, rostrum inconspicuous, upper raphe narrow, surface smooth, ventral holes nearly rounded, 3–5 mm in diam. Fl. Jun, fr. Sep–Nov. $2n = 80$.

Forests, shrublands, rocky areas, roadsides; 800–2200 m. Guangxi, Yunnan [Cambodia, India, Indonesia, Malaysia, Thailand, Vietnam].

2. *Cayratia* subg. *Discypharia* (Suessenguth) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 49. 1996.

突棱亚属 *tu leng ya shu*

Cayratia sect. *Discypharia* Suessenguth in Engler & Prantl, Nat. Pflanzenfam., ed. 2, 20d: 278. 1953; *Causonia* Rafinesque.

Adaxial surface of seeds without a membrane.

About 45 species: Africa, Asia, Oceania; 12 species (six endemic) in China.

6. *Cayratia trifolia* (Linnaeus) Domin, Biblioth. Bot. 89: 370. 1927.

三叶乌莓 *san ye wu lian mei*

Vitis trifolia Linnaeus, Sp. Pl. 1: 203. 1753; *Cissus carnosa* Lamarck; *V. carnosa* (Lamarck) Wallich ex M. A. Lawson.

Lianas, woody. Branchlets terete, with longitudinal ridges, sparsely pubescent; tendrils 3–5-branched. Leaves 3-foliolate; petiole 2.5–6 cm; central petiolule 0.5–2.5 cm, lateral petiolules 4–8 mm, pilose; leaflets oval, 3–6 × 1.5–4 cm, abaxially pilose, adaxially with appressed hairs, lateral veins 7 or 8 pairs, veinlets inconspicuously raised adaxially, base rounded, apex acute or obtuse; lateral leaflets with asymmetric and subrounded base, margin with 8–11 obtuse teeth on each side. Compound dichasium axillary; peduncle 2–7.5 cm, pilose. Pedicel 1–3 mm, pubescent. Buds oval, 1.3–1.8 mm, apex rounded. Calyx shallow and saucer-shaped, pilose, entire or undulate. Petals elliptic, 1.3–1.8 mm, with gray papillose hairs. Anthers oval. Lower part of ovary adnate to disk; style slender. Berry globose, 7–8 mm in diam., 2- or 3-seeded. Seeds triangular, apex rounded, ventral holes obovate-elliptic upward 1/3 from base, ribs obtuse along margin, slightly raised. Fl. and fr. Jun–Dec.

Forests on hillsides or by streams, on rocks; 500–1000 m. Yunnan

5. *Cayratia menglaensis* C. L. Li, Acta Bot. Yunnan. 19: 219. 1997.

勐腊乌莓 *meng la wu lian mei*

Lianas, woody. Branchlets terete, with longitudinal ridges, glabrous. Leaves pedately 7-foliolate; petiole ca. 10 cm; central petiolule ca. 4 cm, petiolules of lateral leaflet complex 1–2.5 cm, lateral petiolules 0.5–2 cm, sparsely pilose; leaflets only abaxially with sparse appressed hairs on veins, lateral veins 4–9 pairs, veinlets not raised abaxially, inconspicuous adaxially; central leaflet obovate-elliptic, ca. 12 × 5.5 cm, base rounded, margin 14- or 15-toothed on each side, apex mucronate; lateral leaflets elliptic, 5–11 × 3–5.5 cm, base subrounded or slightly cordate, margin 5–13-toothed, apex mucronate. Compound dichasium axillary, ca. 5 cm; peduncle 2–3 cm, sparsely pubescent, with nodes and bracts. Pedicel 1–2 mm, papillose. Buds elliptic, 1.5–2 mm, apex rounded. Calyx saucer-shaped, with sparse papillose hairs or glabrescent, nearly entire. Petals elliptic, 1–1.5 mm, apex rounded, glabrous. Anthers yellow, oval. Disk conspicuously 4-divided in male flowers. Ovary poorly developed in male flowers. Fl. Jul.

• Rocky areas on hillsides; ca. 800 m. Yunnan.

[Bangladesh, Cambodia, India, Indonesia, Laos, Malaysia, Nepal, Thailand, Vietnam].

7. *Cayratia timoriensis* (Candolle) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 50. 1996.

南亚乌莓 *nan ya wu lian mei*

Lianas, woody. Branchlets terete, with longitudinal ridges, glabrous; tendrils trifurcate, sometimes tip of lower tendril branch with vestiges of abortive inflorescences. Leaves 3-foliolate; stipules caducous; petiole 3.5–12.5 cm; central petiolule 1.5–3 cm, lateral petiolules 3–5 mm, pilose; leaflets ovate-rhombic or rhombic, 7.5–14.5 × 5.5–8 cm, lateral veins 6–8 pairs, veinlets conspicuous, base broadly cuneate or subrounded; lateral leaflets with asymmetric base, margin with 12–17 rounded teeth on each side, apex acute. Compound dichasium axillary; peduncle 4–9 cm, nearly glabrous. Pedicel 1–2 mm, with dense papillose hairs. Buds oval, 2–3 mm, apex rounded. Calyx saucer-shaped, papillose, undulately lobed. Petals elliptic, 1.7–2.7 mm, densely papillose. Anthers oval, longer than broad. Lower part of ovary adnate to disk. Berry globose, 6–8 mm in diam., 2- or 3-seeded. Seeds triangular-obovoid, base rostrate, apex retuse, ventral holes suborbicular. Fl. Jun–Aug, fr. Aug–Sep.

Forests, valleys, fields; 1000–1200 m. Yunnan [Indonesia, Malaysia, Thailand].

- 1a. Leaflets abaxially glabrous on veins ... 7a. var. *timoriensis*
 1b. Leaflets abaxially pilose on veins 7b. var. *mekongensis*

7a. *Cayratia timoriensis* var. *timoriensis*

南亚乌蕊莓(原变种) nan ya wu lian mei (yuan bian zhong)

Cissus timoriensis Candolle, Prodr. 1: 630. 1824.

Leaflets abaxially glabrous on veins, adaxially glabrous or slightly pilose on veins. Fl. Jun–Jul, fr. Aug–Sep.

Valleys, fields; 1000–1200 m. Yunnan [Indonesia, Malaysia, Thailand].

7b. *Cayratia timoriensis* var. *mekongensis* (C. Y. Wu ex W. T. Wang) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 50. 1996.

澜沧乌蕊莓 lan cang wu lian mei

Cayratia mekongensis C. Y. Wu ex W. T. Wang, Acta Phytotax. Sin. 17(3): 79. 1979.

Leaflets abaxially pilose on veins. Fl. and fr. Jul–Aug.

- Forests in valleys; 1100–1200 m. Yunnan.

8. *Cayratia medogensis* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 50. 1996 [“*medogensis*”].

墨脱乌蕊莓 mo tuo wu lian mei

Lianas, semiwoody. Branchlets terete, with longitudinal ridges, glabrous. Leaves pedately 5-foliolate; stipules caducous; petiole 5–8 cm; central petiolule 1.8–2.2 cm, ca. 2 × as long as lateral petiolules, glabrous; leaflets ovate-elliptic, 3.5–8.5 × 2.5–4.5 cm, glabrous, lateral veins 6–8 pairs, veinlets inconspicuous, base broadly cuneate or subrounded, apex cuspidate; lateral leaflets with asymmetric, subrounded base, margin with irregular teeth, slightly bent outward or forward. Corymbose polychasium axillary; peduncle 1–8 cm, glabrous. Pedicel 1–1.5 mm, pubescent. Buds oval, ca. 1.5 mm, apex rounded. Calyx saucer-shaped, pubescent, nearly entire. Petals ovate-elliptic, ca. 1.2 mm, with dense gray-white hairs. Anthers oval. Lower part of ovary adnate to disk; style short, coniform with ovary at base; stigma not expanded. Fl. May.

- Forests; ca. 900 m. Xizang.

9. *Cayratia maritima* Jackes, Austrobaileya 2: 366. 1987.

海岸乌蕊莓 hai an wu lian mei

Vines, herbaceous. Branchlets terete, with longitudinal ridges, with simple hairs at nodes when young; tendrils 2- or 3-furcate. Leaves 3-foliolate; stipules caducous, triangular; petioles 2–4 cm; leaflets abaxially glabrous when mature, or with hooked hairs on veins near junction of petiole and blade, lateral veins 5 or 6 pairs, veinlets inconspicuous; central leaflet ovate-rhomboid, 2–5 × 1.5–2.5 cm, base cuneate, apex acuminate; lateral leaflets oblique, margin crenulate-serrate. Cymose dichasium axillary. Calyx papillose. Petals spreading, papillose. Anthers oval. Lower part of ovary adnate to disk. Berry globose, ca. 1 cm in diam., 2–4-seeded.

Seasides. Taiwan [Australia].

10. *Cayratia japonica* (Thunberg) Gagnepain, Notul. Syst. (Paris) 1: 349. 1911.

乌蕊莓 wu lian mei

Vines, herbaceous. Branchlets terete, with longitudinal ridges; tendrils 2- or 3-furcate. Leaves pedately 5-foliolate, or sometimes 3-foliolate; stipules caducous; petiole 1.5–10 cm; central petiolule 0.5–2.5 cm, lateral petiolules short or lateral leaflets sessile, petiolules of lateral leaflet complex 0.5–1.5 cm; leaflets with lateral veins 5–9 pairs, veinlets inconspicuous; central leaflet elliptic or elliptic-lanceolate, 2.5–14.5 × 1.5–4.5 cm, base cuneate, apex acute or acuminate; lateral leaflets elliptic or narrowly so, 1–7 × 0.5–3.5 cm, base cuneate or subrounded, margin 6–15-toothed on each side, apex acute or rounded. Compound dichasium axillary; peduncle 1–13 cm. Pedicel 1–2 mm. Buds oval, 1–2 mm, apex rounded. Calyx cupular, papillose or nearly glabrous, margin entire or undulate. Petals triangular-oval, 1–1.5 mm, papillose. Anthers oval. Lower part of ovary adnate to disk. Berry globose, ca. 1 cm in diam., 2–4-seeded. Seeds triangular-obovoid, base rostrate, apex retuse, surface with ribs, ventral holes semicircular, extending from base to near apex. Fl. Mar–Aug, fr. Jul–Jan. 2n = 40*.

Forests, shrublands, valleys, grassy areas, fields, disturbed areas, roadsides; 300–2500 m. Anhui, Chongqing, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Henan, Hunan, Jiangsu, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [Bhutan, India, Indonesia, Japan, Korea, Laos, Malaysia, Myanmar, Nepal, Philippines, Thailand, Vietnam; Australia].

“*Cayratia japonica* var. *taiwaniana*” (Masamune, J. Geobot. 13: iii. 1964), described from Taiwan, may belong here but was not validly published because no type was indicated (*Vienna Code*, Art. 37.1).

- 1a. Branchlets, petioles, peduncles, and abaxial surface of leaflets or only veins densely pubescent with short brownish or gray-brownish hairs 10c. var. *mollis*
- 1b. Branchlets, petioles, and veins on abaxial surface of leaflets pilose.
 - 2a. Tendrils bifurcate; leaves pedately 5-foliolate, elliptic or elliptic-lanceolate 10a. var. *japonica*
 - 2b. Tendrils trifurcate; leaves mostly 3-foliolate, oblong or ovate ... 10b. var. *pseudotrifolia*

10a. *Cayratia japonica* var. *japonica*

乌蕊莓(原变种) wu lian mei (yuan bian zhong)

Vitis japonica Thunberg in Murray, Syst. Veg., ed. 14, 244. 1784; *Causonia japonica* (Thunberg) Rafinesque; *Cayratia tenuifolia* (Wight & Arnott) Gagnepain; *C. trifolia* (Linnaeus) Domin var. *quinquefoliola* W. T. Wang; *Cissus japonica* (Thunberg) Willdenow; *C. leucocarpa* Blume; *C. tenuifolia* (Wight & Arnott) F. Heyne ex Planchon; *Columella japonica* (Thunberg) Merrill; *C. tenuifolia* (Wight & Arnott) Merrill; *V. leucocarpa* (Blume) Hayata; *V. tenuifolia* Wight & Arnott.

Branchlets glabrous or pilose; tendrils bifurcate. Leaves pedately 5-foliolate, elliptic or elliptic-lanceolate, veins brownish when dry, veinlets inconspicuous. Petioles, petiolules, peduncles, and pedicels glabrous or slightly pilose. Fl. Mar–Aug, fr. Aug–Nov.

Forests, shrublands, valleys, disturbed areas, roadsides; 300–2500

m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Henan, Hunan, Jiangsu, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [Bhutan, India, Indonesia, Japan, Korea, Laos, Malaysia, Myanmar, Philippines, Thailand, Vietnam; Australia].

10b. *Cayratia japonica* var. *pseudotrifolia* (W. T. Wang) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 51. 1996.

尖叶乌莓 *jian ye wu lian mei*

Cayratia pseudotrifolia W. T. Wang, Acta Phytotax. Sin. 17(3): 79. 1979.

Tendrils trifurcate. Leaves mostly 3-foliolate, oblong or ovate, 4–8 × 2–4 cm. Fl. May–Aug, fr. Sep–Oct.

• Fields or forests in valleys; 300–1500 m. Chongqing, Gansu, Guangdong, Guizhou, Hebei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.

10c. *Cayratia japonica* var. *mollis* (Wallich ex M. A. Lawson) Momiyama in H. Hara, Fl. E. Himalaya 1: 199. 1966.

毛乌莓 *mao wu lian mei*

Vitis mollis Wallich ex M. A. Lawson in J. D. Hooker, Fl. Brit. India 1: 660. 1875; *Cayratia japonica* var. *canescens* W. T. Wang; *C. japonica* var. *ferruginea* W. T. Wang; *C. japonica* var. *pubifolia* Merrill & Chun; *C. mollis* (Wallich ex M. A. Lawson) C. Y. Wu; *C. tenuifolia* var. *cinerea* Gagnepain; *Cissus japonica* var. *mollis* (Wallich ex M. A. Lawson) Planchon.

Branchlets, petioles, peduncles, abaxial surface of leaflets or only veins with dense brownish or gray-brownish soft hairs. Fl. May–Jul, fr. Jul–Jan.

Forests, shrublands; 300–2200 m. Guangdong, Guangxi, Guizhou, Hainan, Yunnan [Bhutan, India, Nepal].

11. *Cayratia daliensis* C. L. Li, Guihaia 17: 98. 1997.

大理乌莓 *da li wu lian mei*

Vines, herbaceous. Branchlets terete, with longitudinal ridges, glabrous; tendrils trifurcate. Leaves pedately 5-foliolate; stipules caducous; petiole 3–5.5 cm; central petiolule 0.5–2 cm, lateral petiolules absent or short, petiolules of lateral leaflet complex 2–5 mm, sparsely pubescent; leaflets ovate-lanceolate, pilose on veins, lateral veins 6–9 pairs, veinlets conspicuously raised; central leaflet 6.5–9 × 1.8–3.2 cm, base rounded or broadly cuneate, apex acuminate; lateral leaflets 3–6.5 × 1.6–3 cm, base rounded, margin undulate with 12–19 fine teeth on each side, apex acuminate. Compound dichasium axillary; peduncle 0.8–2 cm, glabrous or slightly hairy. Pedicel 2–4 mm, sparsely pubescent. Buds oval, 1–2.5 mm, apex rounded. Calyx saucer-shaped, papillose, entire. Petals oval, 0.8–1.5 mm, papillose. Anthers oval. Lower part of ovary adnate to disk; stigma expanded. Fl. Jun.

• Shrublands; ca. 2600 m. Yunnan.

12. *Cayratia albifolia* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 51. 1996.

白毛乌莓 *bai mao wu lian mei*

Cayratia albifolia var. *glabra* (Gagnepain) C. L. Li; *C.*

oligocarpa (H. Léveillé & Vaniot) Gagnepain f. *glabra* Gagnepain; *C. oligocarpa* var. *glabra* (Gagnepain) Rehder; *Vitis mairei* H. Léveillé (1909, not 1912), p.p. as to *Maire* 414.

Climbers, semiwoody or herbaceous. Branchlets terete, with longitudinal ridges; tendrils trifurcate, sometimes apex of one branch with vestiges of abortive inflorescences. Leaves pedately 5-foliolate; stipules brownish, lanceolate or ovate-lanceolate, 3–4.5 × 1–2 mm, membranous, apex acuminate; petiole 5–12 cm; central petiolule 3–5 cm, petiolules of basal leaflets absent or short, petiolules of lateral leaflets complex, 0.8–1.5 cm; leaflets elliptic or ovate-elliptic, 5–17 × 2–9 cm, abaxially light glaucous, adaxially green, pubescent with short grayish hairs, more densely so on veins, to nearly glabrescent, with lateral veins 6–10 pairs, veinlets inconspicuous, base cuneate, or bases of lateral leaflets nearly rounded, margin 20–28-toothed on each side, teeth obtuse or sharp, apex acute or acuminate. Corymbose polychasium axillary; peduncle 2.5–5 cm. Pedicel 2–3 mm. Buds oval, 1.5–2 mm, apex rounded. Calyx shallow and saucer-shaped, with papillose hairs, teeth inconspicuous. Petals oval or ovate-elliptic, 1–1.5 mm, papillose. Anthers oval. Lower part of ovary adnate to disk. Berry globose, 1–1.2 cm in diam., 2–4-seeded. Seeds obovoid-elliptic, base rostrate, apex rounded or retuse, ventral holes obovate-elliptic. Fl. May–Jul, fr. Jul–Sep.

• Forests in valleys, shrublands, on rocks or cliffs of hillsides; 300–2000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, Yunnan, Zhejiang.

13. *Cayratia oligocarpa* (H. Léveillé & Vaniot) Gagnepain, Notul. Syst. (Paris) 1: 348. 1911.

华中乌莓 *hua zhong wu lian mei*

Vitis oligocarpa H. Léveillé & Vaniot, Bull. Soc. Agric. Sarthe 40: 41. 1905; *Cissus oligocarpa* (H. Léveillé & Vaniot) Bailey; *Columella oligocarpa* (H. Léveillé & Vaniot) Rehder.

Vines, herbaceous. Branchlets terete, with longitudinal ridges, villous with brown segmented hairs 1–1.5 mm; tendrils bifurcate. Leaves pedately 5-foliolate; stipules brownish, lanceolate, 3–3.5 × ca. 1 mm, membranous, nearly glabrous; petiole 2.5–7 cm; central petiolule 1.5–3 cm, lateral petiolules short, petiolules of lateral leaflet complex 0.5–1.5 cm, with dense, long, soft brown segmented hairs; leaflets abaxially with dense segmented hairs, hairs appressed on midvein, adaxially pilose with appressed hairs or nearly glabrous, lateral veins 4–9 pairs, veinlets inconspicuous; central leaflet elliptic-lanceolate or elliptic, 4.5–10 × 2.5–5 cm, base cuneate, margin (5–)7–14(–17)-toothed on each side, apex caudate-acuminate; lateral leaflets ovate-elliptic or oval, 3.5–7 × 1.3–3.5 cm, base cuneate or nearly rounded, margin 5–10-toothed on each side, apex acute or acuminate. Compound dichasium axillary; peduncle 1–4.5 cm, with dense, long, brown, segmented hairs. Pedicel 1.5–2 mm, villous with segmented hairs. Buds oval, 1.5–2 mm, apex rounded. Calyx shallow and saucer-shaped, with brown segmented hairs, teeth inconspicuous. Petals oval, 1–1.5 mm, with segmented hairs. Anthers oval. Disk well developed, 4-lobed. Lower part of ovary adnate to disk; style fine; stigma slightly expanded. Berry globose, 8–10 mm in diam., 2–4-

seeded. Seeds obovoid-elliptic, base rostrate, apex rounded or retuse, ventral holes broadly obovate-elliptic, nearly to apex. Fl. May–Jul, fr. Aug–Sep.

• Forests in valleys or on hillsides; 400–2000 m. Chongqing, Guizhou, Hubei, Shaanxi, Sichuan, Yunnan.

14. *Cayratia fugongensis* C. L. Li, Guihaia 17: 97. 1997.

福贡乌莓 fu gong wu lian mei

Climbers, semiwoody or herbaceous. Branchlets terete, with longitudinal ridges, villous with brown segmented hairs; tendrils trifurcate. Leaves pedately 5-foliolate; stipules triangular-ovate, ca. 4 × 2 mm, herbaceous, sparsely pubescent, apex acuminate; petiole 4–9 cm; central petiolule 1–1.8 cm, petiolules of lateral leaflets absent or short, complex, 2–8 mm, villous with brown segmented hairs; leaflets elliptic or oblong, 3.5–11.5 × 2.5–6 cm, abaxially with sparse brown hairs, more densely so on veins, adaxially with sparse appressed hairs, then glabrescent, lateral veins 9–15 pairs, veinlets raised abaxially, inconspicuous adaxially, base cuneate, or nearly rounded on basal leaflets, margin 16–21-toothed on each side, teeth obtuse or acute, apex acute or mucronate. Corymbose polychasium axillary; peduncle 2.5–5.5 cm, villous with brown segmented hairs. Pedicel 1–2 mm, pilose. Buds oval, 1.5–2 mm, apex rounded. Calyx shallow and saucer-shaped, pilose, teeth inconspicuous. Petals oval or ovate-elliptic, 1–1.5 mm, pilose. Anthers oval. Lower part of ovary adnate to disk. Berry globose, ca. 1 cm in diam., 2–4-seeded. Seeds obovoid-triangular, base conspicuously rostrate, apex retuse, chalazal knot and raphe inconspicuous, ribs raised, ventral holes inconspicuous. Fl. May, fr. Aug.

• Forests on hillsides; 1300–1800 m. Yunnan.

15. *Cayratia ciliifera* (Merrill) Chun, Sunyatsenia 4: 235. 1940.

节毛乌莓 jie mao wu lian mei

Columella ciliifera Merrill, Lingnan Sci. J. 9: 39. 1930;
Cayratia cannabina Gagnepain.

Lianas, woody. Branchlets terete, with longitudinal ridges, villous with segmented hairs 2–3.5 mm; tendrils trifurcate. Leaves pedately 5-foliolate; stipules brownish, oval, 4–6 × 3–4 mm, membranous, nearly glabrescent, apex obtuse; petiole 1.5–4.5 cm; lateral petiolules sessile or central petiolule short, villous with segmented hairs; leaflets obovate-elliptic, 3.5–7 × 1.2–2.5 cm, abaxially villous with appressed segmented hairs, adaxially sparsely villous or glabrous, lateral veins 5–8 pairs, veinlets inconspicuous, base cuneate, apex acuminate or acute; lateral leaflets basally cuneate or nearly rounded, margin with rounded or notched teeth, apex acute or rounded. Compound dichasium axillary; peduncle ca. 3.5 cm, sparsely villous with segmented hairs. Pedicel 0.5–2 mm, villous with segmented hairs. Buds elliptic, 1.5–2 mm, apex rounded. Calyx cupular, sparsely pubescent, subtire. Petals oval, 1–1.5 mm, pilose, apex corniculate. Lower part of ovary adnate to disk; stigma not expanded. Berry globose, 6–8 mm in diam., 2–4-seeded. Seeds obovoid, base rostrate, apex rounded, raphe groovelike, surface netlike with ribs raised, ventral holes inconspicuous.

Forests in valleys; 300–400 m. Hainan [Vietnam].

16. *Cayratia corniculata* (Bentham) Gagnepain, Notul. Syst. (Paris) 1: 347. 1911.

角花乌莓 jiao hua wu lian mei

Vitis corniculata Bentham, Fl. Hongk. 54: 1861; *Columella corniculata* (Bentham) Merrill.

Vines, herbaceous. Branchlets terete, with longitudinal ridges, glabrous; tendrils bifurcate. Leaves pedately 5-foliolate; stipules caducous; petiole 2–4.5 cm; petiolules short or leaflets nearly sessile, petiolules of lateral leaflet complex 0.4–1.5 cm, glabrous; leaflets glabrous, lateral veins 5–7 pairs, veinlets inconspicuous; central leaflet elliptic-lanceolate, 3.5–9 × 1.5–3 cm, base cuneate, margin with 5 or 6 teeth on each side, apex acuminate; lateral leaflets ovate-elliptic, 2–5 × 1.5–2.5 cm, base cuneate or rounded, apex acute or obtuse. Compound dichasium axillary; peduncle 3–3.5 cm, glabrous. Pedicel 1.5–2.5 mm, glabrous. Buds oval or ovoid-elliptic, 2–3 mm. Calyx cupular, glabrous, entire or triangular lobed. Petals triangular-oval, 1.5–2.5 mm, with sparse papillose hairs, corniculate at apex. Anthers oval, nearly as long as wide. Lower part of ovary adnate to disk; style short, slightly enlarged at base. Berry globose, 8–10 mm in diam., 2–4-seeded. Seeds obovoid-elliptic, base rostrate, apex retuse, raphe raised, ventral holes groovelike or obovate-elliptic in shape upward nearly 1/3. Fl. Apr–May, fr. Jul–Sep.

Forests in valleys, shrublands on hillsides; 200–600 m. Fujian, Guangdong, Hainan, Taiwan [Malaysia, Philippines, Vietnam].

17. *Cayratia cardiospermoides* (Planchon ex Franchet) Gagnepain, Notul. Syst. (Paris) 1: 348. 1911.

短柄乌莓 duan bing wu lian mei

Ampelopsis cardiospermoides Planchon ex Franchet, Bull. Soc. Bot. France 33: 460. 1886.

Vines, herbaceous. Branchlets terete, with longitudinal ridges, sparsely pubescent when young, then glabrescent; tendrils unbranched. Leaves pedately 3–9-foliolate; stipules brownish, oval, 1.5–2 × 1–1.5 mm, membranous, glabrous, apex acute; petiole short, 0.3–1.5 cm; central petiolule 0.5–2 cm, petiolules of lateral leaflet complex 3–6 mm, lateral leaflets nearly sessile, sparsely pubescent when young, then glabrescent; leaflets undivided or deeply 3-parted, abaxially pubescent on veins, then glabrescent, lateral veins 4–7 pairs, veinlets inconspicuous; lobes or leaflets lanceolate, obovate-elliptic, or elliptic; central leaflet 3–8 × 0.5–4 cm, base cuneate, apex acuminate, acute, or obtuse; lateral leaflets 1–5 × 0.5–3 cm, base broadly cuneate, margin with 4–9 rounded teeth on each side, apex obtuse or rounded. Compound dichasium axillary; peduncle 1–3 cm, with sparse papillose hairs. Buds suborbicular, 1.5–2 mm, apex rounded. Calyx shallow and saucer-shaped, papillose, margin undulate or slightly dentate. Petals oval, 1.3–1.8 mm, with papillose hairs. Anthers oval, nearly as long as wide. Lower part of ovary adnate to disk. Berry globose, 8–10 mm in diam., 2- or 3-seeded. Seeds obovoid, base rostrate, apex rounded or retuse, chalazal knot elliptic at middle on back, upper raphe raised, transverse and obtuse ribs raised, ventral mid-raphe raised, ventral holes groovelike, from base upward to 1/4. Fl. Jul, fr. Aug–Sep.

• Shrublands, grassy areas of hillsides, meadows; 1600–2100 m. Sichuan, Yunnan.

6. TETRASTIGMA (Miquel) Planchon in A. Candolle & C. Candolle,
Monogr. Phan. 5: 320, 423. 1887.

崖爬藤属 ya pa teng shu

Ren Hui (任辉); Jun Wen (文军)

Climbers, woody, rarely herbaceous, usually polygamo-dioecious. Tendrils unbranched or bifurcate, sometimes palmately branched. Leaves usually palmately 3–5-foliolate or pedately 5–7-foliolate, rarely simple. Inflorescence a polychasium, an umbel, or a compound cyme. Flowers 4-merous. Petals spreading, free, usually hooded or galeate, sometimes corniculate. Stamens short, abortive in female flowers. Disk well developed in male flowers, inconspicuous in female flowers. Style conspicuous or inconspicuous; stigma usually 4-divided, rarely irregularly divided. Berry globose, ellipsoid, or obovoid, 1–4-seeded. Seed elliptic, obovoid-elliptic, or obtriangular, abaxial surface with a linear to orbicular chalazal knot, adaxial surface with a linear raphe; cross-section of endosperm T- or M-shaped.

About 100 species: Asia to Oceania; 44 species (24 endemic) in China.

The type of *Tetrastigma megalocarpum* W. T. Wang (Acta Phytotax. Sin. 17(3): 82. 1979), described from Yunnan, could not be located. It was said by C. L. Li to be a mixed gathering: leaf of *Tetrastigma* and fruit of *Spondias* Linnaeus (Anacardiaceae).

- 1a. Leaves simple, rarely mixed with 2- or 3-foliolate ones.
- 2a. Young branches and petiole ± pubescent; leaf veinlets abaxially inconspicuously raised; calyx teeth conspicuous, conical; petals pubescent 18. *T. subtetragonum*
- 2b. Young branches and petiole glabrous; leaf veinlets abaxially ± raised; calyx teeth inconspicuous; petals glabrous.
- 3a. Leaves subleathery; peduncle 2–3.5 cm, pubescent; pedicels 2–3 mm, pubescent 15. *T. erubescens*
- 3b. Leaves papery; peduncle 8–13.5 cm, glabrous; pedicels 4–10 mm, glabrous 5. *T. longipedunculatum*
- 1b. Leaves palmately or pedately compound.
- 4a. Leaves pedately 5–7-foliolate.
- 5a. Leaflets abaxially pubescent or at least on veins.
- 6a. Margin of central leaflet 12–24-toothed on each side; seeds elliptic or obtriangular.
- 7a. Branchlets, petioles, and abaxial veins densely ferruginous villous; petals corniculate; seeds elliptic, surface smooth 3. *T. tonkinense*
- 7b. Branchlets, petioles, and abaxial veins pilose; petals not corniculate; seeds obtriangular, surface with ribs 31. *T. rumicispermum*
- 6b. Margin of central leaflet 4–9-toothed on each side; seeds elliptic or obovoid-elliptic.
- 8a. Leaflets leathery or subleathery, petiole conspicuously corrugated when dry 29. *T. pubinerve*
- 8b. Leaflets papery, petiole inconspicuously corrugated when dry.
- 9a. Calyx teeth small and inconspicuous 41. *T. serrulatum*
- 9b. Calyx teeth obvious and long 17. *T. henryi*
- 5b. Leaflets abaxially glabrous.
- 10a. Peduncle glabrous.
- 11a. Leaflet margin 3- or 4(or 5)-toothed on each side.
- 12a. Central leaflet elliptic-lanceolate; berries oblong 14. *T. caudatum*
- 12b. Central leaflet obovate-elliptic; berries obovoid-elliptic 28. *T. godefroyanum*
- 11b. Leaflet margin 7–14(or 15)-toothed on each side.
- 13a. Petals apically conspicuously corniculate.
- 14a. Lianas, robust, woody; old branches gray and tuberculate; seeds obtriangular, surface with ribs 32. *T. ceratopetalum*
- 14b. Lianas, slender; old branches green-brownish or purplish, not tuberculate; seeds globose, surface finely corrugated 41. *T. serrulatum*
- 13b. Petals galeate, or inconspicuously corniculate at apex.
- 15a. Leaves pedately 7-foliolate 34. *T. jingdongense*
- 15b. Leaves pedately 5-foliolate, sometimes 7-foliolate.
- 16a. Branchlets gray; seeds globose, surface corrugated 26. *T. xishuangbannaense*
- 16b. Branchlets greenish; seeds obtriangular, surface with ribs.
- 17a. Leaflets obovate-oblong or obovate-elliptic, base nearly rounded, that of central leaflet broadly cuneate, apex acute or acuminate 30. *T. lenticellatum*
- 17b. Leaflets obovate-lanceolate or obovate, base cuneate, apex caudate-acuminate or mucronate 31. *T. rumicispermum*
- 10b. Peduncle pubescent or papillose.
- 18a. Petals apically conspicuously corniculate.

- 19a. Calyx teeth inconspicuous; leaves pedately 5-foliolate, mixed with 3-foliolate leaves 27. *T. pachyphyllum*
 19b. Calyx teeth conspicuous; leaves pedately 5-foliolate, mixed with 3- or 7-foliolate leaves 17. *T. henryi*
 18b. Petals apically galeate, not corniculate.
 20a. Calyx teeth conspicuous; leaflets lanceolate 2. *T. lineare*
 20b. Calyx teeth inconspicuous; leaflets oblanceolate, elliptic, or elliptic-lanceolate.
 21a. Central leaflet oblanceolate, margin 12–16-toothed; calyx cupular 36. *T. tsaiianum*
 21b. Central leaflet elliptic or elliptic-lanceolate, margin 4–10-toothed; calyx saucer-shaped.
 22a. Ovary brownish pubescent 33. *T. macrocorymbum*
 22b. Ovary glabrous.
 23a. Leaves pedately 5-foliolate, rarely 4- or 6-foliolate.
 24a. Leaves leathery; inflorescence leaf-opposed, longer than petiole 23. *T. xizangense*
 24b. Leaves papery; inflorescence axillary, shorter than petiole 24. *T. lincangense*
 23b. Leaves pedately 7-foliolate.
 25a. Berry 2.5–3 cm in diam.; seeds elliptic, surface corrugated 25. *T. jinghongense*
 25b. Berry 0.8–1.5 cm in diam.; seeds obtriangular, surface with ribs 35. *T. delavayi*
 4b. Leaves digitately palmately 3–5-foliolate.
 26a. Leaves palmately 5-foliolate.
 27a. Tendrils digitately branched.
 28a. Inflorescence a compound cyme 43. *T. yunnanense*
 28b. Inflorescence a simple umbel 44. *T. obtectum*
 27b. Tendrils bifurcate or unbranched.
 29a. Leaves abaxially densely pubescent or hirsute, then becoming sparsely so.
 30a. Branchlets, petioles, rachises, and abaxial leaf surface rusty pubescent, hairs 0.2–0.4 mm 21. *T. sichouense*
 30b. Branchlets, petioles, rachises, and abaxial leaf surface brownish hirsute, hairs 2–3 mm 22. *T. obovatum*
 29b. Leaves abaxially glabrous.
 31a. Branches 1.5–2 mm in diam.; inflorescence a simple umbel 40. *T. hypoglaucum*
 31b. Branches 3–6 mm in diam.; inflorescence a compound dichasium or polychasium.
 32a. Inflorescence cauliflorous (on old stems) 20. *T. cauliflorum*
 32b. Inflorescence on current year's branches.
 33a. Petals apically conspicuously corniculate 15. *T. erubescens*
 33b. Petals apically galeate, not corniculate.
 34a. Central leaflet lanceolate, narrowly lanceolate, or ovate-lanceolate; style inconspicuous 19. *T. planicaule*
 34b. Central leaflet obovate-elliptic; style conspicuous 21. *T. sichouense*
 26b. Leaves 3-foliolate.
 35a. Tendrils digitately branched 42. *T. triphyllum*
 35b. Tendrils bifurcate or unbranched.
 36a. Leaves abaxially pubescent or at least on veins.
 37a. Leaflets abaxially pubescent; calyx teeth subulate, ca. 1/2 as long as petals 17. *T. henryi*
 37b. Leaflets abaxially pubescent only on veins; calyx teeth inconspicuous 7. *T. jinxiuense*
 36b. Leaves abaxially glabrous.
 38a. Pedicels glabrous.
 39a. Leaflets entire at margin 6. *T. yiwuense*
 39b. Leaflets toothed at margin.
 40a. Shrubs, erect or nearly erect 4. *T. apiculatum*
 40b. Lianas.
 41a. Leaves usually 4–6(–8) × 2–3 cm; petiole 1–2 cm; inflorescence axillary 38. *T. formosanum*
 41b. Leaves usually 7–12 × 4–6.2 cm; petiole 5–10 cm; inflorescence opposite or pseudo-opposite to leaves 39. *T. lanyuense*
 38b. Pedicels ± pubescent or papillose.
 42a. Leaves leathery or subleathery, veinlets raised on abaxial surface or both surfaces.
 43a. Leaves subleathery, veinlets raised only on abaxial surface 11. *T. kwangsiense*
 43b. Leaves leathery, veinlets raised on both surfaces 8. *T. retinervium*
 42b. Leaves papery, veinlets inconspicuously raised.
 44a. Petals apically galeate, not corniculate.
 45a. Leaflets rhombic-oval, abaxially conspicuously glaucous; petals pilose with white hairs 9. *T. campylocarpum*
 45b. Leaflets elliptic, elliptic-lanceolate, or obovate-elliptic, abaxially not glaucous; petals glabrous.
 46a. Branchlets smooth with sparse lenticels; central leaflet elliptic or elliptic-lanceolate 10. *T. funingense*
 46b. Branchlets conspicuously tuberculate; central leaflet usually obovate-oval 13. *T. pseudocruciatum*

- 44b. Petals apically conspicuously corniculate.
- 47a. Calyx teeth conspicuous, cone-shaped, ca. 1/2 as long as petals 17. *T. henryi*
- 47b. Calyx teeth small and inconspicuous.
- 48a. Herbaceous climbers; seed surface smooth.
- 49a. Petals ± papillose; ventral holes of seeds parallel with ventral raphe 1. *T. papillatum*
- 49b. Petals glabrous; ventral holes of seeds furrowed 37. *T. hemsleyanum*
- 48b. Woody lianas; seed surface corrugated.
- 50a. Leaves obovate-elliptic; petals densely papillose; berries globose 27. *T. pachyphyllum*
- 50b. Leaves elliptic or lanceolate; petals glabrous; berries ellipsoid.
- 51a. Branches tuberculate; inflorescence densely compact; style inconspicuous 12. *T. cruciatum*
- 51b. Branchlets smooth, with sparse lenticels; inflorescence loosely branched; style conspicuous.
- 52a. Leaflet margin usually 12–24-toothed on each side, abaxial veinlets conspicuous 16. *T. venulosum*
- 52b. Leaflet margin 3–8-toothed on each side, abaxial veinlets inconspicuous.
- 53a. Leaves usually 3-foliolate, rarely pedately 5-foliolate; leaflets lanceolate or elliptic, apex caudate-acuminate 14. *T. caudatum*
- 53b. Leaves usually 3-foliolate, occasionally palmately 5-foliolate; leaflets elliptic or elliptic-lanceolate, apex mucronate 15. *T. erubescens*

1. *Tetragium* subg. *Tetragium*

崖爬藤亚属 ya pa teng ya shu

Vitis sect. *Tetragium* Miquel, Ann. Mus. Bot. Lugduno-Batavi 1: 72. 1863.

Tendrils unbranched or bifurcate. Inflorescence usually a polychasium. Seeds elliptic, obovoid-elliptic, or obtriangular, surface smooth, corrugated, or with strumose protuberance or ribs.

About 95 species: Asia to Oceania; 41 species (22 endemic) in China.

1. *Tetragium papillatum* (Hance) C. Y. Wu, Chin. J. Appl. Environ. Biol. 1: 312. 1995.

海南崖爬藤 hai nan ya pa teng

Vitis papillata Hance, J. Bot. 16: 226. 1878; *Cayratia papillata* (Hance) Merrill & Chun; *Tetragium hainanense* Chun & F. C. How.

Lianas, woody. Branchlets terete, slender, with longitudinal ridges, glabrous; tendrils unbranched. Leaves 3-foliolate; petiole 3.5–7 cm; central petiolule 1–2.5 cm, lateral petiolules short, 0.5–1.5 cm, glabrous; leaflets elliptic, ovate-elliptic, or obovate-elliptic, 6–13 × 3–6 cm, glabrous, lateral veins 6 or 7 pairs, veinlets inconspicuous, base broadly cuneate, base of lateral leaflets asymmetric, sometimes subrounded, margin with 5–11 dentate teeth on each side, apex mucronate or acuminate. Inflorescence umbelliform, axillary, 2.5–9.5 cm, with nodes and bracts; peduncle 1–2.5 cm, pubescent. Pedicel 1.5–4 mm, pubescent. Buds oval, 1.5–2 mm. Calyx saucer-shaped, papillose, margin undulate. Petals oval, 1.3–1.8 mm, apex corniculate, papillose. Filaments short; anthers yellow, oval. Disk obvious, 4-lobed. Lower part of ovary adnate to disk; style conspicuous; stigma 4-divided. Berry globose, ca. 8 mm in diam., 2-seeded. Seeds oval, base obtuse, apex rounded, surface smooth, ventral holes inconspicuous. Fl. Mar, fr. Aug.

• Forests in valleys; 400–700 m. Guangxi, Guizhou, Hainan.

2. *Tetragium lineare* W. T. Wang, Chin. J. Appl. Environ. Biol. 1: 313. 1995.

条叶崖爬藤 tiao ye ya pa teng

Lianas, woody. Branchlets terete, slender, with longitudinal ridges, glabrous. Leaves pedately 5-foliolate; petiole 1–6

cm; central petiolule 1.3–1.5 cm, petiolules of lateral leaflet complex 0.5–1.5 cm, lateral petiolules very short or lateral leaflets subsessile, glabrous; leaflets glabrous, lateral veins 5–7 pairs, veinlets inconspicuous; central leaflet lanceolate, 10–16 × 3–5 cm, base cuneate or rounded, apex acuminate; lateral leaflets 7–12 × 2–2.4 cm, base rounded or slightly cordate, margin undulately serrate, apex acuminate or mucronate. Inflorescence umbelliform, axillary; peduncle 1.5–2.5 cm, glabrous. Pedicel 1–1.2 mm, pilose. Buds oval, 1.8–2 mm, apex rounded. Calyx cupular, pilose, teeth fine, ca. 1/2 as long as petals. Petals oval, 1.6–1.8 mm, glabrous, apex galeate. Disk conspicuous, 4-lobed. Lower part of ovary adnate to disk; style short; stigma 4-lobed. Fl. Mar.

• Forests on hillsides or in valleys; 400–1200 m. Yunnan.

3. *Tetragium tonkinense* Gagnepain, Notul. Syst. (Paris) 1: 268. 1910.

越南崖爬藤 yue nan ya pa teng

Lianas, woody. Branchlets terete, with longitudinal ridges, with dense curly ferruginous hirsute hairs. Leaves pedately 5-foliolate, rarely 3-foliolate; petiole 10–11 cm; central petiolule 1.5–1.8 cm, lateral petiolules very short or lateral leaflets subsessile, densely hirsute with curly hairs; leaflets oblanceolate or obovate-lanceolate, 9–13 × 3–4.5 cm, abaxially densely hirsute or at least on veins with curly ferruginous hairs, adaxially nearly glabrous, lateral veins 9–11 pairs, veinlets inconspicuous, base cuneate or broadly so, base of lateral leaflets asymmetric, subrounded, margin with 21–31 sharp teeth on each side, apex acuminate. Inflorescence umbelliform, axillary, 2–3 cm at fruiting stage, articulate at lower part and with bracts at nodes; peduncle ca. 1.2 cm, pubescent. Pedicel ca. 1.2 mm,

pubescent. Buds ca. 1.5 mm, apex rounded and obtuse. Calyx saucer-shaped, pubescent, teeth 4. Petals ovate-elliptic, ca. 1.2 mm, apex corniculate, papillose. Disk inconspicuous and annular in female flowers. Lower part of ovary adnate to disk; style conspicuous; stigma 4-lobed. Berry globose, ca. 1 cm in diam., 3-seeded. Seed elliptic, base with very short rostrum, apex subrounded, chalazal knot inconspicuous, upper raphe slightly raised, surface smooth, ventral mid-raphé obviously raised, holes inconspicuous. Fl. Apr, fr. May.

Forests in valleys; 100–400 m. S Guangxi [Vietnam].

4. *Tetrastigma apiculatum* Gagnepain, Notul. Syst. (Paris) 1: 261. 1910.

草崖藤 *cao ya teng*

Shrubs, erect, 40–100 cm tall. Branchlets terete, with longitudinal ridges, glabrous. Leaves 3-foliolate, rarely simple at base; petiole 5–8 cm; central petiolule 1–2 × as long as lateral petiolules, glabrous; leaflets glabrous, lateral veins 6–8 pairs, base of central leaflet cuneate, that of lateral leaflets oblique, subrounded, margin with 6–9 sparse teeth on each side, apex cuspidate. Inflorescence umbelliform, leaf-opposed or pseudo-terminal, 8–15 cm; peduncle 2.5–3 cm. Pedicel 2–10 mm. Buds elliptic or oval, 1.5–2.5 mm, apex rounded. Calyx cupular, margin undulate. Petals elliptic, 1.3–2.3 mm, apex corniculate or galeate, subglabrate. Filaments filiform; anthers yellow, oval. Disk well developed, 4-lobed. Pistil abortive in male flowers. Fl. Apr–May.

Forests in valleys or on hillsides; 500–700 m. Guangxi, Hainan, Yunnan [Laos, Vietnam].

1a. Pedicel and calyx glabrous 4a. var. *apiculatum*
1b. Pedicel and calyx pubescent 4b. var. *pubescens*

4a. *Tetrastigma apiculatum* var. *apiculatum*

草崖藤(原变种) *cao ya teng* (yuan bian zhong)

Peduncle glabrous or slightly pubescent. Pedicel and calyx glabrous. Fl. Apr–May.

Forests in valleys; 500–700 m. Guangxi, Yunnan [Laos, Vietnam].

4b. *Tetrastigma apiculatum* var. *pubescens* C. L. Li, Chin. J. Appl. Environ. Biol. 1: 314. 1995.

柔毛草崖藤 *rou mao cao ya teng*

Pedicel and calyx pubescent. Fl. Apr.

• Forests on hillsides; ca. 500 m. Hainan, Yunnan.

5. *Tetrastigma longipedunculatum* C. L. Li, Chin. J. Appl. Environ. Biol. 1: 314. 1995.

长梗崖爬藤 *chang geng ya pa teng*

Lianas, woody, slender. Branchlets terete, with slight longitudinal ridges, glabrous. Leaves simple; stipules caducous; petiole 2–4.5 cm, glabrous; leaf blade ovate-elliptic, 7.5–13 × 3.5–5.5 cm, glabrous, lateral veins 7 or 8 pairs, veinlets raised, base broadly cuneate, apex acuminate. Compound dichasium; peduncle 8–13.5 cm, glabrous. Pedicel 4–10 mm, glabrous. Buds oval, 2.5–3 mm, apex rounded. Calyx cupular, glabrous, teeth inconspicuous. Petals elliptic, glabrous, apex corniculate.

Filaments flat; anthers yellow, oval. Disk well developed, 4-lobed. Pistil abortive in male flowers. Fl. May.

• Forests in valleys; 400–700 m. Guangxi.

6. *Tetrastigma yiwuense* C. L. Li, Chin. J. Appl. Environ. Biol. 1: 315. 1995.

易武崖爬藤 *yi wu ya pa teng*

Lianas, woody. Branchlets terete, with longitudinal ridges, glabrous; tendrils unbranched. Leaves 3-foliolate; petiole 8.5–10.5 cm; central petiolule 1.3–1.5 cm, lateral petiolules 0.7–1.5 cm, glabrous; central leaflet obovate-elliptic; lateral leaflets elliptic, 11–15.5 × 4.5–7 cm, glabrous, lateral veins 4 or 5 pairs, veinlets raised, base of central leaflet broadly cuneate, that of lateral leaflets asymmetric and subrounded, margin entire, apex cuspidate. Compound dichasium. Pedicel glabrous. Berry globose, 1–1.5 cm in diam., 1-seeded. Seed elliptic, base rostrate, apex retuse, surface corrugated. Fr. Nov.

• Forests in valleys; ca. 700 m. Yunnan.

7. *Tetrastigma jinxiuense* C. L. Li, Chin. J. Appl. Environ. Biol. 1: 315. 1995.

金秀崖爬藤 *jin xiu ya pa teng*

Lianas, woody. Branchlets terete, with longitudinal ridges, densely ferruginous pubescent. Leaves 3-foliolate; petiole 6–9 cm; central petiolule 2–3 cm, lateral petiolules 1–2 cm, densely ferruginous pubescent; leaflets abaxially pubescent on veins; central leaflet obovate-elliptic, 12.5–26 × 6.5–12 cm, base broadly cuneate, margin entire on lower part, 7–9-toothed on upper part, apex acuminate; lateral leaflets ovate-elliptic, 10–21 × 5–11 cm, base asymmetric, subrounded or broadly cuneate, margin 5–9-toothed on each side, entire near base or on lower half, apex cuspidate. Inflorescence cymose and axillary, with 1 or 2 nodes and bracts; peduncle 3–10 cm, densely ferruginous pubescent. Pedicel 1–3 mm, densely pubescent. Buds narrowly oval, 1.5–2 mm, apex subtruncate or rounded. Calyx saucer-shaped, densely pubescent or papillose, margin undulately lobed or subentire. Petals ovate-triangular, 1–1.5 mm, papillose, apex galeate. Anthers oval. Disk well developed, 4-lobed. Pistil abortive in male flowers. Fl. May.

• On trees in valleys; 300–500 m. Guangxi (Jinxiu).

8. *Tetrastigma retinervium* Planchon var. *pubescens* C. L. Li, Chin. J. Appl. Environ. Biol. 1: 316. 1995.

柔毛网脉崖爬藤 *rou mao wang mai ya pa teng*

Lianas, woody. Branchlets terete, with longitudinal ridges, glabrous; tendrils bifurcate. Leaves 3-foliolate; petiole (3–)4–9 cm; central petiolule (0.8–)1.5–3 cm, lateral petiolules (0.3–)1–1.5 cm, glabrous; leaflets oval, ovate-elliptic, or oblong, 7–15 × 4–7 cm, glabrous, lateral veins 5–8 pairs, veinlets raised, base rounded or subrounded, sometimes central leaflet broadly cuneate, base of lateral leaflets asymmetric, margin with 4–9 teeth on each side, apex acute or mucronate. Compound dichasium or umbel axillary; peduncle 3–5.5 cm, lower part nearly glabrous, upper part sparsely pubescent. Pedicel 1–2 mm, pubescent, rarely subglabrate. Buds oval, 1.5–2.5 mm, apex rounded. Calyx shallow and saucer-shaped, papillose, rarely subglabrate, margin with undulate teeth. Petals 4, ovate-elliptic, 1.3–2.3 mm,

apex galeate, papillose, rarely subglabrate. Stamen short, abortive in female flowers. Disk inconspicuous and annular in female flowers. Lower part of ovary adnate to disk; style inconspicuous; stigma 4-lobed. Berry elliptic, 6–7 × 5–6 mm, 1-seeded. Seed elliptic, ventral holes furrowed from middle to apex. Fl. Apr–May, fr. Aug–Sep.

• Forests or shrublands on hillsides; 400–1500 m. Guangxi, Yunnan.

Tetragium retinervium var. *retinervium* is known only from Vietnam.

9. *Tetragium campylocarpum* (Kurz) Planchon in A. Candolle & C. Candolle, Monogr. Phan. 5: 437. 1887.

多花崖爬藤 duo hua ya pa teng

Vitis campylocarpa Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 41: 302. 1872.

Lianas, woody. Branchlets terete, with longitudinal ridges, glabrous; tendrils unbranched. Leaves palmately 3–5-foliolate; petiole 8–11 cm; central petiolule 2.5–4.5 cm, lateral petiolules 0.5–1.5 cm, glabrous; leaflets glabrous on both surfaces, lateral veins 5 or 6 pairs, veinlets inconspicuous; central leaflet obovate-elliptic, 8–15 × 5–8.5 cm, base broadly cuneate; lateral leaflets rhombic-ovate, base asymmetric and subrounded, margin with 3–5 fine teeth on each side, apex acute. Inflorescence a large compound dichasium, axillary or pseudoterminal; peduncle 1–2.5 cm, pilose, then glabrescent. Pedicel 1–2.5 mm, pubescent, then nearly glabrescent. Buds elliptic or obovoid-elliptic, 1–1.2 mm, apex rounded. Flowers small. Calyx teeth inconspicuous, pubescent, margin undulate. Petals galeate, pubescent. Anthers yellow, ovoid. Disk well developed, 4-lobed. Lower part of ovary adnate to disk in female flowers; ovary cylindrical; style absent; stigma truncate, slightly 4-lobed. Berry purple-black when mature, elliptic, 1–1.5 cm × 6–10 mm, 1- or 2-seeded. Seeds elliptic and flat, base rostrate, apex retuse, ventral holes furrowed nearly to apex. Fl. Oct–Dec, fr. Dec to Apr.

Forests, forest margins, shrublands; 500–1100 m. S and W Yunnan [Bhutan, India, Myanmar, Thailand].

10. *Tetragium funingense* C. L. Li, Chin. J. Appl. Environ. Biol. 1: 316. 1995.

富宁崖爬藤 fu ning ya pa teng

Lianas, woody. Branchlets terete, with longitudinal ridges, glabrous; tendrils unbranched. Leaves 3-foliolate; stipules oval, ca. 3 × 4 mm, glabrous, apex acute; petiole 2.5–5 cm; petiolules 0.6–1.3 cm, central petiolule longer than lateral ones, glabrous; leaflets elliptic or elliptic-lanceolate, 5–9 × 2–4 cm, glabrous, lateral veins 7 or 8 pairs, veinlets inconspicuous, base rounded, margin with 4–8 teeth on each side, apex acuminate or mucronate. Inflorescence umbelliform, leaf-opposed; peduncle ca. 1.5 cm, sparsely pubescent. Pedicel 2–2.5 mm, glabrous. Buds elliptic, 1.8–2 mm, sparsely papillose, apex rounded. Calyx cupular, pubescent, teeth inconspicuous. Petals galeate at apex, sparsely papillose. Filaments short; anthers oval. Disk thin. Lower part of ovary adnate to disk in female flowers; style inconspicuous; stigma 4-lobed. Fl. Apr.

• Rocky mountains and hillsides; ca. 1000 m. Yunnan (Funing).

11. *Tetragium kwangsiense* C. L. Li, Chin. J. Appl. Environ. Biol. 1: 317. 1995.

广西崖爬藤 guang xi ya pa teng

Lianas, woody. Stems gray, slightly flat; branchlets terete, with longitudinal ridges, glabrous; tendrils unbranched. Leaves 3-foliolate; petiole 4–7 cm; central petiolule 1.5–3 cm, lateral petiolules 0.5–1.5 cm, glabrous; leaflets glabrous, lateral veins 5 or 6 pairs, veinlets distinct, raised abaxially; central leaflet elliptic-ovate or obovate-elliptic, 5.5–12 × 3.5–7 cm, base subrounded, margin with 4–6 fine teeth on each side, or teeth inconspicuous and subentire, apex mucronate; lateral leaflets ovate-elliptic or broadly oval, 6–9.5 × 3–5.5 cm, base asymmetric and subrounded, margin with 3–5 fine teeth on each side or subentire, apex acute. Compound dichasium glomerate, axillary, pseudoterminal or leaf-opposed, only axillary inflorescences with nodes and bracts; male inflorescence short, 1.5–2 cm; female inflorescence loose, ca. 6 cm; peduncle of male inflorescence 5–10 mm, that of female inflorescence ca. 3 cm, pubescent. Pedicels of male inflorescence very short or flowers nearly sessile; pedicels of female inflorescence 3–4 mm, pubescent. Buds oval, 1.5–2.5 mm, apex rounded. Calyx shallow and saucer-shaped, pubescent, margin undulate. Petals ovate-elliptic, apex subrounded, densely papillose. Filaments short; anthers yellow. Disk distinct, 4-lobed, inconspicuous in female flowers. Ovary coniform; style short and distinct; stigma 4-lobed. Berry elliptic, 1–1.2 cm in diam., 1- or 2-seeded. Seeds elliptic, base short, apex rounded, ventral holes furrowed nearly to apex. Fl. May–Jun, fr. Aug.

• Forests in valleys; 400–500 m. Guangxi.

12. *Tetragium cruciatum* Craib & Gagnepain, Bull. Misc. Inform. Kew 1911: 30. 1911.

十字崖爬藤 shi zi ya pa teng

Lianas, woody. Stems flat. Branchlets brown, terete, tuberculate, glabrous; tendrils unbranched. Leaves 3-foliolate; petiole 3–4.5 cm; petiolules 2–4 mm, glabrous; leaflets glabrous, lateral veins 4–8 pairs, veinlets inconspicuous; central leaflet elliptic-lanceolate or obovate-lanceolate, 11.5–13 × 2.5–5 cm, base cuneate, margin with 4 or 5 undulate fine teeth on each side, apex acuminate or caudately so; lateral leaflets ovate-lanceolate or ovate-elliptic, 6.5–10.5 × 2.5–4.5 cm, base asymmetric and cuneate, apex acuminate or mucronate. Inflorescence umbelliform, axillary, 0.5–1.5 cm, basal part articulate and subtended by bracts; peduncle 5–10 mm, glabrous. Pedicel 2–3 mm, papillose. Buds elliptic, ca. 2 mm, apex rounded. Calyx shallow and saucer-shaped, papillose, margin undulate. Petals elliptic, corniculate, papillose. Anthers oval. Ovary coniform; style nearly absent; stigma 4-lobed. Berry globose, 1–1.2 cm in diam., 2-seeded. Seeds flat, obovoid, base rostrate, apex rounded, ventral holes furrowed from middle to apex. Fl. Apr–Aug, fr. Jul–Nov.

Forests, shrublands; 600–1600 m. S Yunnan [Thailand, Vietnam].

13. *Tetragium pseudocruciatum* C. L. Li, Chin. J. Appl. Environ. Biol. 1: 318. 1995.

过山崖爬藤 guo shan ya pa teng

Lianas, woody. Branchlets brown, terete, ridged with

transverse corrugations when dry, ± tuberculate, glabrous; tendrils unbranched. Leaves 3-foliolate, rarely pedately 5-foliolate or 1- or 2-foliolate; petiole 1.5–4.5 cm, with distinct wings and transverse corrugations when dry; petiolules 0.2–1.5 cm, central petiolule ca. as long as lateral ones, glabrous; leaflets glabrous, lateral veins 4–7 pairs, veinlets slightly raised or sometimes inconspicuous; central leaflet elliptic-lanceolate, 6.5–14 × 2.5–4.5 cm, base cuneate, margin with 4 or 5 undulate fine teeth on each side, apex acuminate or obtuse; lateral leaflets ovate-lanceolate or elliptic-lanceolate, 3.5–11 × 1.5–4 cm, base cuneate, rarely subrounded, usually asymmetric, margin with 3–5 undulate teeth on each side, apex acuminate or acute. Inflorescence umbellate, glomerate, short, 1–1.5 cm, ca. 1 cm in diam.; peduncle 3–10 mm, densely pubescent. Pedicel 0.5–1 mm, pubescent. Buds obovoid, 1–1.2 mm, apex rounded. Calyx saucer-shaped, pubescent, margin undulate. Petals elliptic, 0.5–1 mm, apex rounded, papillose or subglabrate. Berry globose, 6–7 mm in diam., 1-seeded. Seed oblong, base obtuse, apex subrounded, ventral holes furrowed from upper 1/3, surface with transverse ribs. Fl. Apr–Jul, fr. Sep–Nov.

- Forests in valleys; 500–800 m. Hainan.

14. *Tetrastigma caudatum* Merrill & Chun, *Sunyatsenia* 2: 275. 1935.

尾叶崖爬藤 wei ye ya pa teng

Lianas, woody. Branchlets terete, with longitudinal ridges, glabrous; tendrils unbranched. Leaves 3-foliolate or simple, rarely 2-foliolate or 5-foliolate, rarely pedately 5-foliolate at lower part of stem; petiole 2.5–7 cm; central petiolule 1.5–4 cm, lateral petiolules short, 0.5–1.5 cm, glabrous; leaflets lanceolate, elliptic-lanceolate, or ovate-lanceolate, 6–14 × (2–)3–5 cm, glabrous, lateral veins 4–6 pairs, veinlets inconspicuously raised, base of central leaflet cuneate or broadly cuneate, base of lateral leaflets asymmetric and subrounded, margin with 4–6 obtuse and dentate teeth on each side, teeth rarely fine and inconspicuous, apex caudate-acuminate. Inflorescence umbelliform, axillary, 2.5–3 cm, articulate and subtended with bracts; peduncle 1–3.5 cm, pubescent. Pedicel 2–4 mm, with appressed hairs. Buds bottle-shaped, constricted near upper middle, 2–3 mm, apex truncate or obtuse. Calyx saucer-shaped, glabrous, with 4 triangular denticles. Petals ovate-elliptic, 1.5–2.5 mm, apex cuneate, glabrous. Filaments filiform, ca. 0.7 mm; anthers yellow, ovoid-elliptic, ca. 0.5 mm. Disk distinct, 4-lobed. Lower part of ovary adnate to disk; style distinct, base slightly thick; stigma conspicuously 4-lobed. Berry elliptic, 1–1.2 cm × 6–8 mm in diam., 1-seeded. Seed flat, elliptic, base obtuse, apex subrounded, ventral holes furrowed, parallel, nearly reaching apex. Fl. May–Jul, fr. Sep–Apr.

Forests in valleys, shrublands on hillsides; 200–700 m. Fujian, Guangdong, Guangxi, Hainan [Vietnam].

15. *Tetrastigma erubescens* Planchon in A. Candolle & C. Candolle, *Monogr. Phan.* 5: 444. 1887.

红枝崖爬藤 hong zhi ya pa teng

Lianas, woody. Branchlets terete, with longitudinal ridges, glabrous; tendrils unbranched. Leaves 3-foliolate; petiole 5–10 mm, glabrous; leaflets elliptic or elliptic-lanceolate, 8–16 × 5–5.5 cm, glabrous, lateral veins 4–7 pairs, veinlets raised abaxially,

inconspicuously adaxially, base broadly cuneate or subrounded, margin with 5–8, sparse, fine teeth on each side, apex mucronate. Inflorescence umbelliform, axillary, with 2 or 3 nodes; bracts subtending nodes; peduncle 2–3.5 cm, pubescent. Pedicel 2–3 mm, reddish brown pubescent. Buds oval, 1.5–2 mm, apex subrounded. Calyx shallow and saucer-shaped, pubescent, teeth inconspicuous. Petals oval, 1.2–1.8 mm, apex corniculate, glabrous or subglabrate. Disk distinct, 4-lobed. Lower part of ovary adnate to disk; style distinct; stigma 4-lobed. Berry oblong, 1.3–1.5 cm × 6–7 mm, 2-seeded. Seeds elliptic, apex subrounded, ventral holes inconspicuous. Fl. Apr–May, fr. next Apr–May.

Forests, rocky crests; 100–1100 m. Guangdong, Guangxi, Hainan, Yunnan [Cambodia, Vietnam].

- 1a. Leaves 3-foliolate, or occasionally palmately 5-foliolate 15a. var. *erubescens*
- 1b. Leaves mostly simple, rarely (2- or)3-foliolate 15b. var. *monophyllum*

15a. *Tetrastigma erubescens* var. *erubescens*

红枝崖爬藤(原变种) hong zhi ya pa teng (yuan bian zhong)

Tetrastigma erubescens var. *monospermum* Gagnepain.

Leaves 3-foliolate, sometimes palmately 5-foliolate; central petiolule 1–3 cm, lateral petiolules short; central leaflet base broadly cuneate, margin 7- or 8-toothed on each side; lateral leaflets base slightly asymmetric, rounded.

Forests, rocky crests; 100–1100 m. Guangdong, Guangxi, Hainan, Yunnan [Cambodia, Vietnam].

15b. *Tetrastigma erubescens* var. *monophyllum* Gagnepain in *Lecomte, Fl. Indo-Chine* 1: 960. 1912.

单叶红枝崖爬藤 dan ye hong zhi ya pa teng

Tetrastigma monophyllum (Gagnepain) C. Y. Wu ex W. T. Wang.

Leaves sometimes lavender in color, mostly simple, rarely (2- or)3-foliolate, leathery.

Forests; 100–500 m. S Yunnan [Vietnam].

16. *Tetrastigma venulosum* C. Y. Wu, *Chin. J. Appl. Environ. Biol.* 1: 320. 1995.

马关崖爬藤 ma guan ya pa teng

Lianas, woody. Branchlets terete, slender, with conspicuous longitudinal ridges, glabrous. Leaves 3-foliolate; stipules caducous; petiole 5.5–7 cm; central petiolule ca. 2.5 cm, lateral petiolules 1–1.5 cm, glabrous; leaflets ovate-elliptic, 14.5–15.5 × 5.5–6 cm, glabrous, lateral veins 9 or 10 pairs, abaxially veinlets distinct but not raised, adaxially raised, base rounded, apex cuspidate. Compound dichasium, axillary, ca. 3 cm; peduncle ca. 1.7 cm, slightly papillose. Pedicel 1–1.5 mm, papillose. Buds ovoid-elliptic, 2–2.5 mm. Calyx cupular, papillose, teeth irregular. Petals elliptic, corniculate, glabrous. Filaments abortive and anther sterile in female flowers. Disk well developed in female flowers, undulately lobed. Lower part of ovary adnate to disk; style short; stigma 4-lobed. Fl. Jun.

- Forests; ca. 1600 m. Yunnan.

17. *Tetrastigma henryi* Gagnepain, Notul. Syst. (Paris) 1: 264. 1910.

蒙自崖爬藤 meng zi ya pa teng

Tetrastigma henryi var. *mollifolium* W. T. Wang; *T. lunglingense* C. Y. Wu & W. T. Wang; *T. tenue* Craib.

Lianas, woody. Branchlets terete, with longitudinal ridges, glabrous or slightly pubescent; tendrils unbranched. Leaves 3-foliolate to pedately 5-foliolate, rarely 7-foliolate; petiole 2.5–10.5 cm; central petiolule 1–2 cm, lateral petiolules 0.5–1.5 cm, glabrous; leaflets elliptic or elliptic-lanceolate, 5.5–14 × 2–5 cm, lateral veins 6–8 pairs, veinlets inconspicuous, base of central leaflet broadly cuneate, base of lateral leaflets asymmetric, broadly cuneate, or subrounded, margin 6–8-toothed on each side, apex acuminate or caudately so. Inflorescence umbelliform, axillary, 2–6 cm; peduncle 1.5–3 cm, pubescent. Pedicel 2–4 mm, pubescent. Buds oval, 2–2.5 mm. Calyx cupular, pubescent, teeth lanceolate, ca. 1/2 as long as petals. Petals 1.7–2.2 mm, corniculate with ciliate margins at apex. Disk distinct, 4-lobed. Lower part of ovary adnate to disk; style short; stigma 4-lobed. Berry broadly elliptic to spheroid, 6–8 mm in diam., 1- or 2-seeded. Seeds oval, base sharp with a short rostrum, apex rounded, ventral holes furrowed from middle to near apex. Fl. Apr, fr. Jun–Sep.

• Forests in valleys and on slopes; 600–1600 m. Guizhou, Xizang, Yunnan.

Wang (Acta Phytotax. Sin. 17(3): 81. 1979) recognized *Tetrastigma henryi* var. *mollifolium*. The pubescence on the leaves is variable, even among the syntypes of *T. henryi*: *A. Henry 9992A* (K) and *A. Henry 11756* (K) have glabrous leaves, whereas *A. Henry 10530A* (K) and *A. Henry 10530C* (K) have densely pubescent leaves.

18. *Tetrastigma subtetragonum* C. L. Li, Chin. J. Appl. Environ. Biol. 1: 321. 1995.

红花崖爬藤 hong hua ya pa teng

Lianas, woody. Branchlets terete, with longitudinal ridges, pubescent; tendrils unbranched. Leaves simple, papery; petiole 0.8–3 cm, sparsely pubescent, then glabrescent; leaflets elliptic or elliptic-lanceolate, 6.5–14 × 3.5–6.5 cm, abaxially pilose on veins, then glabrescent, lateral veins 8 or 9 pairs, usually 2 or 3 pairs near base, veinlets inconspicuous, base rounded, margin 8–19-toothed on each side, apex acuminate. Inflorescence umbelliform, axillary; peduncle 1–1.5 cm, pubescent. Pedicel 1.5–3 mm, densely pubescent. Buds oval, 1.5–2 mm. Calyx cupular, densely pubescent, teeth ca. 1/2 as long as petals. Petals oval, 1.3–1.8 mm, long corniculate, densely pubescent. Filaments distinctly abortive in female flowers; anthers fine, suborbicular. Disk distinct, 4-lobed. Lower part of ovary adnate to disk; style short; stigma inconspicuously expanded, 4-lobed. Berry globose, 1–1.2 cm in diam., 2- or 3-seeded. Seeds elliptic, base obtuse, apex rounded, ventral holes furrowed from 1/3 above base upward to apex. Fl. Mar, fr. Jun–Jul.

• Forests in valleys; 1000–1400 m. Yunnan.

19. *Tetrastigma planicaule* (J. D. Hooker) Gagnepain, Notul. Syst. (Paris) 1: 319. 1910.

扁担藤 bian dan teng

Vitis planicaulis J. D. Hooker, Bot. Mag. 94: t. 5685. 1868.

Lianas, woody. Stem flat. Branchlets terete or slightly flat with longitudinal ridges, glabrous; tendrils unbranched. Leaves palmately 5-foliolate; petiole 3–11 cm, glabrous; petiolules 0.5–3 cm, central petiolule 2–4 × as long as lateral petiolules, glabrous; leaflets elliptic-lanceolate, lanceolate, or ovate-lanceolate, (6–)9–16 × (2.5–)3–6(–7) cm, glabrous, lateral veins 5 or 6 pairs, veinlets raised, base cuneate, margin 5–9-toothed on each side, teeth inconspicuous or fine, rarely large, apex acuminate or acute. Inflorescence umbelliform, axillary, 15–17 cm, with nodes and brown bracts, rarely leaf-opposed and without nodes and bracts; peduncle 3–4 cm, glabrous. Pedicel 3–10 mm, glabrous or sparsely pilose. Buds oval, 2.5–3 mm, apex obtuse. Calyx shallow and saucer-shaped, papillose, teeth inconspicuous. Petals ovate-triangular, 2–2.5 mm, apex galeate, sparsely papillose. Filaments filiform; anthers yellow, oval, short and abortive in female flowers. Disk well developed, 4-lobed, or inconspicuous and annular in female flowers. Ovary broadly coniform, base papillose; style inconspicuous; stigma 4-lobed. Berry globose, 2–3 cm in diam., 1- or 2(or 3)-seeded. Seeds oblong, base sharp, apex rounded, ventral holes furrowed from base to apex. Fl. Apr–Jun, fr. Aug–Dec.

Forests in valleys, rocks; 100–2100 m. Fujian, Guangdong, Guangxi, Guizhou, S and E Xizang, Yunnan [India, Laos, Sri Lanka, Vietnam].

20. *Tetrastigma cauliflorum* Merrill, Lingnan Sci. J. 11: 48. 1932.

茎花崖爬藤 jing hua ya pa teng

Tetrastigma membranaceum C. Y. Wu ex W. T. Wang.

Lianas, woody. Stem grayish brown, flat. Branchlets slightly flat, with longitudinal ridges, glabrous; tendrils unbranched. Leaves palmately 5-foliolate; petiole 10–15 cm; petiolules 1–4 cm, central petiolule 2–3 × as long as lateral petiolules, glabrous; leaflets oblong, elliptic-lanceolate, or obovate-elliptic, 8–18(–22) × 3.5–9 cm, glabrous, lateral veins 6–8 pairs, veinlets raised abaxially, inconspicuous adaxially, base broadly cuneate or subrounded, margin 5–9-toothed on each side, teeth usually large, apex cuspidate. Inflorescence umbelliform or a compound dichasium, cauliflorous, 9–11 cm, with nodes and bracts; peduncle 2.5–8 cm, glabrous or pubescent. Pedicel 2–8 mm, pubescent. Buds elliptic or oval, 1–3 mm, apex obtuse or rounded. Calyx saucer-shaped, pubescent, teeth inconspicuous. Petals oval, 0.8–2.5 mm, apex galeate, papillose. Filaments filiform; anthers yellow, oval. Disk well developed and 4-lobed in male flowers, inconspicuous in female flowers. Pistil in male flower abortive; ovary oval in female flowers; style inconspicuous; stigma 4-lobed. Berry elliptic or ovoid, 1.5–2 × 1.2–2 cm, 1–4-seeded. Seeds elliptic, flat, base and apex subrounded, ventral holes furrowed from base to apex. Fl. Apr, fr. Jun–Dec.

Forests in valleys; 100–1100 m. Guangdong, Guangxi, Hainan, Yunnan [Laos, Vietnam].

21. *Tetrastigma sichouense* C. L. Li, Chin. J. Appl. Environ. Biol. 1: 322. 1995.

西畴崖爬藤 xi chou ya pa teng

Lianas, woody. Stem flat. Branchlets slightly flat or terete; tendrils unbranched. Leaves palmately 5-foliolate; petiole 5–20 cm; petiolules 1.5–5 cm, central petiolule longer than lateral petiolules; leaflets obovate-elliptic or obovate-oblong, 6–20 × 3.5–10 cm, lateral veins 6–8 pairs, veinlets raised abaxially, inconspicuous adaxially, base cuneate or broadly so, base of lateral leaflets asymmetric and subrounded, margin (6–)8–13-toothed on each side, apex caudate-acuminate or cuspidate. Inflorescence umbelliform, axillary, with nodes and bracts; peduncle 2–4 cm, densely ferruginous pubescent. Pedicel 3–4 mm, densely pubescent. Buds ovoid-elliptic, 3–4 mm, apex rounded. Calyx shallow and saucer-shaped, papillose, margin undulate. Petals elliptic, 2.5–3.5 mm, apex galeate, papillose. Filaments slender; anthers abortive in female flowers. Disk inconspicuous in female flower. Ovary coniform, papillose or nearly glabrous; stigma 4-lobed. Berry spheroid, 2–3 cm in diam., 2- or 3-seeded. Seeds elliptic and flat, base and apex obtuse, ventral holes furrowed and nearly parallel from base to apex. Fl. Apr–May, fr. Jun–Nov.

Forests or shrublands in valleys; 500–2400 m. Guizhou, Xizang, Yunnan [Vietnam].

- 1a. Leaflets abaxially densely ferruginous pubescent, then sparsely so when old 21a. var. *sichouense*
 1b. Leaflets abaxially glabrous 21b. var. *megalocarpum*

21a. Tetrastigma sichouense var. *sichouense*

西畴崖爬藤(原变种) xi chou ya pa teng (yuan bian zhong)

Branchlets, petioles, and petiolules densely ferruginous pubescent. Leaflets abaxially densely ferruginous pubescent, then sparsely so when old, adaxially glabrous. Fl. May, fr. Sep–Oct.

Forests or shrublands in valleys; 500–2400 m. Guizhou, Yunnan [Vietnam].

21b. Tetrastigma sichouense var. *megalocarpum* C. L. Li, Chin. J. Appl. Environ. Biol. 1: 322. 1995.

大果西畴崖爬藤 da guo xi chou ya pa teng

Petioles and abaxial surface of leaflets glabrous. Fl. Apr–May, fr. Jun–Nov.

• Forests or shrublands in valleys; 600–2100 m. Guizhou, Xizang, Yunnan.

22. Tetrastigma obovatum Gagnepain, Notul. Syst. (Paris) 1: 266. 1910.

毛枝崖爬藤 mao zhi ya pa teng

Vitis obovata M. A. Lawson in J. D. Hooker, Fl. Brit. India 1: 658. 1875, not Rafinesque (1830), nor Baker (1871).

Lianas, woody. Stem slightly flat. Branchlets terete, with longitudinal ridges, densely hirsute, hairs 1–3 mm; tendrils unbranched. Leaves palmately 5-foliolate; petiole 10–16 cm; petiolules 0.8–3 cm, densely hirsute; leaflets abaxially hirsute, adaxially with sparse appressed pilose hairs on veins or glabrescent, lateral veins 6–8 pairs, veinlets distinct; central leaflet obovate-elliptic; lateral leaflets elliptic, 7–20 × 4–10 cm, base broadly cuneate, asymmetric, margin 6–15-toothed on each

side, teeth large or sometimes inconspicuous, apex cuspidate. Inflorescence compound, broad and umbelliform dichasium, axillary, 5–10 cm; peduncle 4–5 cm, hirsute. Pedicel 2–4 mm, densely hirsute. Buds oval, apex obtuse. Calyx pilose, with 4 triangular teeth. Petals oval, apex galeate, pilose. Filaments expanded at base; anthers yellow, ovoid. Disk inconspicuous in female flowers. Ovary coniform, hirsute; style conspicuous, slightly thick at base; stigma 4-divided. Berry orange, spheroid, 2–3 cm in diam., (1 or)2- or 3-seeded. Seeds oblong, base rotate, apex retuse, ventral holes furrowed from middle to apex. Fl. Jun, fr. Aug–Dec.

Forests, forest margins, shrublands, mountain slopes, valleys; 200–1900 m. Yunnan [India (Khasia hills), Laos, Thailand, Vietnam].

23. Tetrastigma xizangense C. L. Li, Chin. J. Appl. Environ. Biol. 1: 324. 1995.

西藏崖爬藤 xi zang ya pa teng

Lianas, woody. Branchlets terete, lenticels conspicuous, glabrous. Leaves pedately 4- or 5-foliolate; petiole ca. 5 cm; petiolules 1–1.6 cm, glabrous; leaflets elliptic, 5–13 × 4.5–5 cm, glabrous, lateral veins 9 or 10 pairs, veinlets slightly raised abaxially, inconspicuous adaxially, base rounded or broadly cuneate, margin sparsely toothed, apex acuminate or acute. Corymbose cyme leaf-opposed; peduncle ca. 1.5 cm, glabrous. Pedicel 2–5 mm, pubescent. Buds ovoid-elliptic, 1.5–2 mm, apex subrounded. Calyx saucer-shaped, pubescent, margin undulately toothed. Petals oval, apex galeate, pubescent. Style short, thick; stigma 4-lobed. Fl. Apr.

• Forests; 800–900 m. Xizang.

24. Tetrastigma lincangense C. L. Li, Chin. J. Appl. Environ. Biol. 1: 324. 1995.

临沧崖爬藤 lin cang ya pa teng

Lianas, woody. Branchlets terete, with longitudinal ridges, glabrous; tendrils unbranched. Leaves pedately 5-foliolate; petiole 3.5–7 cm; central petiolule 1–2 cm, lateral petiolules 0.4–1 cm, glabrous; leaflets elliptic or obovate-elliptic, 8–15 × 3–7 cm, glabrous, lateral veins 5–8 pairs, veinlets distinctly raised abaxially, slightly raised adaxially, base cuneate, base of lateral leaflets asymmetric, upper margin with 5–7 fine teeth on each side, apex acute or cuspidate. Inflorescence umbelliform, axillary, 1.2–1.5 cm, 1.5–2 cm in diam.; peduncle ca. 0.2 cm, pubescent. Pedicel short or flower sessile. Buds obovoid, ca. 1.5 mm, apex subtruncate. Calyx saucer-shaped, gray pilose, margin with 4 triangular denticles. Petals elliptic, ca. 1.2 mm, apex galeate, with gray hairs. Filaments short, ca. 0.3 mm; anthers yellow, oval, ca. 0.5 mm. Disk inconspicuous, annular. Ovary coniform, lower part of ovary adnate to disk; style inconspicuous; stigma 4-lobed. Berry spheroid, 0.8–1 cm in diam., 1- or 2-seeded. Seeds elliptic, base sharp, apex retuse, back chalazal knot zonate, with transverse and obtuse ribs, ventral holes furrowed from upper middle to apex. Fl. Mar, fr. Jun–Sep.

• Forests; 1300–2100 m. SW Yunnan.

25. Tetrastigma jinghongense C. L. Li, Chin. J. Appl. Environ. Biol. 1: 324. 1995.

景洪崖爬藤 jing hong ya pa teng

Lianas, woody. Stem flat. Branchlets terete, with longitudinal ridges, glabrous. Leaves pedately 7-foliolate; petiole 12–15 cm; central petiolule 2.5–4 cm, petiolules of lateral leaflet complex ca. as long as central petiolule, lateral petiolules short, glabrous; leaflets elliptic-lanceolate or elliptic, 5–18 × 3–7 cm, glabrous, lateral veins 4–9 pairs, veinlets raised, base cuneate, base of lateral leaflets asymmetric, margin undulate with 4–10 fine teeth on each side, apex acuminate or cuspidate. Inflorescence umbelliform, axillary; peduncle 1–1.5 cm, pubescent. Pedicel 2–4 mm, pubescent. Buds ovoid-coniform, 2.6–3 mm, upper middle constricted, apex rounded. Calyx saucer-shaped, papillose, margin undulately lobed. Petals 4, ovate-elliptic, 2.5–2.8 mm, apex galeate, papillose. Disk thin in female flowers. Ovary coniform; style inconspicuous; stigma 4-lobed. Berry brown-yellow, spheroid, 2.5–3 cm in diam., 1- or 2-seeded. Seeds elliptic, base obtuse, apex retuse, ventral holes furrowed, parallel at lower portion, tapering from middle to apex. Fl. Mar, fr. Jul–Nov.

- Forests by rivers or on hillsides; 700–1200 m. Yunnan.

26. *Tetrastigma xishuangbannaense* C. L. Li, Chin. J. Appl. Environ. Biol. 1: 326. 1995.

西双版纳崖爬藤 xi shuang ban na ya pa teng

Lianas, woody. Branchlets gray, terete, transversely corrugated when dry, flaky when old, glabrous; tendrils bifurcate. Leaves pedately 5–7-foliolate; petiole 6.5–9 cm; central petiolule 2–4.5 cm, petiolules of lateral leaflet complex 2–4 cm, lateral petiolules 0.5–1.5 cm, glabrous; leaflets elliptic or obovate-elliptic, 7–13 × 4–7.5 cm, lateral leaflets nearly as long as or slightly shorter than central leaflet, glabrous, lateral veins 3–5 pairs, veinlets inconspicuous, base broadly cuneate or subrounded, margin 3–5-toothed on each side, teeth fine, sometimes inconspicuous, apex acute or cuspidate. Dichasium axillary, ca. 7 cm; peduncle ca. 2.8 cm, glabrous. Buds elliptic, 2.5–3 mm, apex rounded. Calyx saucer-shaped, glabrous, margin undulately lobed. Petals elliptic, 2–2.5 mm, apex galeate, glabrous. Stamens 4; anthers elliptic. Disk distinct and 4-lobed in male flowers. Berry globose or pyriform, 8–10 mm in diam. Seeds spheroid, surface with netlike corrugations. Fl. Aug, fr. Oct–Apr.

- Forests in valleys or on hillsides; 600–1100 m. Yunnan.

27. *Tetrastigma pachyphyllum* (Hemsley) Chun, Sunyatsenia 4: 235. 1940.

厚叶崖爬藤 hou ye ya pa teng

Vitis pachyphylla Hemsley, J. Linn. Soc., Bot. 23: 135. 1886; *Tetrastigma crassipes* Planchon var. *strumarum* Planchon; *T. strumarum* (Planchon) Gagnepain.

Lianas, woody. Stem flat, often tuberculate. Branchlets terete, with longitudinal ridges, sparsely tuberculate, glabrous; tendrils unbranched. Leaves pedately 5-foliolate or 3-foliolate; petiole 4.5–9.5 cm; petiolules 1.5–4 cm, glabrous; leaflets obovate or obovate-elliptic, sometimes lateral leaflets elliptic or ovate-elliptic, 4–10 × 2–4 cm, lateral veins 5 or 6 pairs, veinlets slightly raised abaxially, inconspicuous adaxially, base cuneate

or broadly so, base of lateral leaflets asymmetric, margin sparsely 4- or 5-toothed on each side, glabrous, apex cuspidate. Compound dichasium axillary, 9.5–10 cm, with nodes and bracts; peduncle 1–1.5 cm, densely pubescent. Pedicel 2–3 mm, pubescent, more elongated and tuberculate at fruiting stage. Buds elliptic, ca. 2 mm, apex rounded. Calyx saucer-shaped, papillose, teeth inconspicuous. Petals ovate-elliptic, ca. 1.8 mm, apex slightly and obtusely corniculate, papillose. Disk inconspicuous in female flowers. Ovary narrowly coniform; style inconspicuous; stigma 4-lobed. Berry globose, 1–1.8 cm in diam., 1- or 2-seeded. Seeds elliptic, base with a sharp, short rostrum, apex retuse, ventral holes furrowed upward from middle to apex. Fl. Apr–Jul, fr. May–Oct.

Lowland forests or shrublands. Guangdong, Hainan [Laos, Vietnam].

28. *Tetrastigma godefroyanum* Planchon in A. Candolle & C. Candolle, Monogr. Phan. 5: 436. 1887.

柄果崖爬藤 bing guo ya pa teng

Lianas, woody. Branchlets gray, terete, sparsely tuberculate, glabrous; tendrils unbranched. Leaves pedately 5-foliolate; petiole 4–9.5 cm; central petiolule 1.5–2.6 cm, lateral petiolules 2–8 mm, glabrous; leaflets glabrous, lateral veins 4–6 pairs, veinlets inconspicuous; central leaflet obovate or obovate-elliptic, 5–11 × 3–4.5 cm, base cuneate, margin with 4 or 5 obtuse teeth at upper middle half on each side, apex cuspidate, rarely acuminate; lateral leaflets elliptic or obovate-elliptic, 4–8 cm, base cuneate or broadly so, asymmetric, apex mucronate or cuspidate. Inflorescence umbelliform, axillary, ca. 10 × 6 cm; peduncle 6–6.6 cm, glabrous. Pedicel 2–6 mm, glabrous. Buds elliptic, ca. 2 mm, apex rounded. Calyx saucer-shaped, glabrous, teeth inconspicuous. Petals ovate-elliptic, apex galeate, glabrous. Stamens abortive and shorter than pistil in female flowers. Disk inconspicuous in female flowers. Ovary ovoid; style inconspicuous; stigma 4-lobed. Berry obovoid-elliptic, 1.2–1.4 cm × 8–10 mm, 1-seeded. Seed elliptic, base gradually tapering, apex rounded, ventral holes furrowed upward from base to apex. Fl. Apr–Aug, fr. May–Nov.

Lowland forests, shrublands, rocky crests. Hainan [Cambodia, Laos, Thailand, Vietnam].

29. *Tetrastigma pubinerve* Merrill & Chun, Sunyatsenia 2: 275. 1935.

毛脉崖爬藤 mao mai ya pa teng

Lianas, woody. Branchlets terete, with longitudinal ridges, transversely corrugated when dry, pubescent, then glabrescent; tendrils unbranched. Leaves pedately 5-foliolate; petiole 4–10.5(–15) cm; central petiolule 1–2.5 cm, petiolules of lateral leaflet complex 1–2.5 cm, lateral petiolules 0.5–2 cm, transversely corrugated when dry, sparsely pubescent, then glabrescent; leaflets only pubescent abaxially on veins, then glabrescent, lateral veins 7–9 pairs, veinlets raised abaxially; central leaflet elliptic or elliptic-lanceolate, 12–25 × 4–7 cm, base broadly cuneate, margin 6–8-toothed on each side, apex acute or acuminate; lateral leaflets ovate-lanceolate or ovate-elliptic, 6–20 × 2.5–7 cm, base cuneate or subrounded, margin 4–7-

toothed on each side, apex acute, acuminate, or obtuse. Inflorescence umbelliform, axillary, with nodes and bracts at lower portion; peduncle 1.3–2 cm, pubescent. Pedicel (2–)3–4 mm, pubescent. Buds obovoid, 2.5–3.5 mm, apex subtruncate. Calyx shallow and saucer-shaped, papillose, teeth inconspicuous. Petals elliptic, 2–3 mm, apex corniculate, papillose. Anthers yellow, elliptic. Disk inconspicuous and annular in female flowers. Ovary ovoid, lower part of ovary adnate to disk; style inconspicuous; stigma 4-lobed. Berry globose, 1–1.2 cm in diam., 2(or 3)-seeded. Seeds obovoid, base sharp, apex retuse, ventral holes furrowed upward from middle to apex. Fl. Jun, fr. Aug–Dec.

Forests in valleys, shrublands on hillsides; 300–600 m. Guangdong, Guangxi, Hainan [Cambodia, Vietnam].

30. *Tetrastigma lenticellatum* C. Y. Wu ex W. T. Wang, Acta Phytotax. Sin. 17(3): 82. 1979.

显孔崖爬藤 xian kong ya pa teng

Lianas, woody. Branchlets terete, with longitudinal ridges and conspicuous lenticels, glabrous; tendrils bifurcate. Leaves pedately 5-foliolate, rarely 7-foliolate; petiole 7–16 cm; central petiolule 1.5–4 cm, petiolules of lateral leaflet complex 1–4 cm, lateral petiolules 2–10 mm, glabrous; leaflets glabrous, veinlets inconspicuously raised; central leaflet obovate-elliptic, 11–18.5 × 5–10 cm, lateral veins 8–10 pairs, base broadly cuneate, margin with 14–16 denticles on each side, apex mucronate or acuminate; lateral leaflets elliptic, 6–14 × 2.5–7.5 cm, lateral veins 5–8 pairs, base usually asymmetric, margin 5–14-toothed on each side, apex acuminate or acute. Inflorescence umbelliform, axillary, (3–)7–12 cm; peduncle 4–5 cm, glabrous. Pedicel 1–1.5 mm, glabrous. Buds elliptic, 1.3–2 mm, apex rounded. Calyx cupular, glabrous, margin undulate. Petals elliptic, 1–1.8 mm, apex galeate, glabrous. Filaments filiform; anthers yellow, elliptic, ca. 0.6 × 0.5 mm. Disk well developed in male flowers, 4-divided. Berry spheroid, 8–10 mm in diam., 2- or 3-seeded. Seeds obovoid-triangular, base sharp, apex retuse, ventral holes furrowed upward from base to apex. Fl. May–Jun, fr. Oct–Dec.

• Forests or shrublands in valleys; 500–1000 m. Yunnan.

31. *Tetrastigma rumicispermum* (M. A. Lawson) Planchon in A. Candolle & C. Candolle, Monogr. Phan. 5: 429. 1887.

喜马拉雅崖爬藤 xi ma la ya ya pa teng

Lianas, woody. Branchlets terete, conspicuously tuberculate when old, glabrous; tendrils bifurcate. Leaves pedately 5-foliolate; petiole 3–14 cm; central petiolule 1–3 cm, petiolules of lateral leaflet complex 0.5–1.8 cm, lateral petiolules 0.5–1.8 cm, glabrous; central leaflet obovate-elliptic, 4–17 × 3–8 cm, glabrous or pilose on midvein when young, lateral veins 7–19 pairs, veinlets inconspicuous, base cuneate, base of lateral leaflets asymmetric, margin with 7–16 denticles on each side, apex acute or mucronate. Inflorescence axillary or leaf-opposed on lateral branches, umbelliform; peduncle 3–8 cm, pubescent or glabrous. Pedicel 1–3 mm, papillose or glabrescent. Buds elliptic or obovoid-elliptic, 2–2.5 mm, apex rounded. Calyx shallow and saucer-shaped, glabrous, margin undulate. Petals elliptic,

1.8–2.3 mm, apex galeate, glabrous. Anthers yellow. Disk well developed in male flowers, 4-lobed, thin in female flowers. Ovary coniform, lower part of ovary adnate to disk; style inconspicuous; stigma 4-lobed. Berry globose, 8–10 mm in diam., 2- or 3-seeded. Seeds obovoid-triangular, base attenuate, apex retuse, ventral holes furrowed upward 1/3 from middle. Fl. Apr–May, fr. Jul–next May.

Forests on hillsides or in valleys; 500–2500 m. Xizang, Yunnan [Bhutan, India, Laos, Nepal, Thailand, Vietnam].

1a. Ovary glabrous 31a. var. *rumicispermum*
1b. Ovary ferruginous pilose 31b. var. *lasiogynum*

31a. *Tetrastigma rumicispermum* var. *rumicispermum*

喜马拉雅崖爬藤(原变种) xi ma la ya ya pa teng (yuan bian zhong)

Vitis rumicisperma M. A. Lawson in J. D. Hooker, Fl. Brit. India 1: 661. 1875; *Cayratia kiuijiangensis* C. Y. Wu ex W. T. Wang.

Ovary glabrous. Fl. Apr–May, fr. Jul–next May.

Forests on hillsides or in valleys; 500–2500 m. Xizang, Yunnan [Bhutan, India, Laos, Nepal, Thailand, Vietnam].

31b. *Tetrastigma rumicispermum* var. *lasiogynum* (W. T. Wang) C. L. Li, Chin. J. Appl. Environ. Biol. 1: 327. 1995.

锈毛喜马拉雅崖爬藤 xiu mao xi ma la ya ya pa teng

Tetrastigma serrulatum (Roxburgh) Planchon var. *lasiogynum* W. T. Wang, Acta Phytotax. Sin. 17(3): 83. 1979.

Ovary ferruginous pilose. Fl. May, fr. Jul–Aug.

• Forests in valleys. Yunnan.

32. *Tetrastigma ceratopetalum* C. Y. Wu, Chin. J. Appl. Environ. Biol. 1: 327. 1995.

角花崖爬藤 jiao hua ya pa teng

Lianas, robust, woody. Branchlets terete, tuberculate, glabrous; tendrils unbranched. Leaves pedately 5-foliolate; petiole 3–7.5 cm; central petiolule 0.5–1.5 cm, petiolules of lateral leaflet complex 0.5–1.8 cm, lateral petiolules short or lateral leaflets sessile, glabrous; leaflets obovate-elliptic or obovate-lanceolate, 5–12 × 2.5–5 cm, glabrous, lateral veins 5–8 pairs, veinlets inconspicuous abaxially, raised adaxially, base cuneate, base of lateral leaflets asymmetric, margin 4–9-toothed on each side, teeth sharp, apex acute or mucronate. Compound dichasium terminal, axillary, or pseudoterminal, axillary inflorescences with nodes and bracts; peduncle 1–6 cm, glabrous. Pedicel 2–4 mm, glabrous. Buds bottle-shaped, 1.5–2 mm, apex subtruncate. Calyx cupular, glabrous, margin undulate. Petals elliptic, 1.3–1.5 mm, apex corniculate, glabrous. Filaments filiform, ca. 1 mm; anthers yellow, ovoid-elliptic, ca. 0.9 × 0.7 mm. Disk conspicuous, 4-lobed, inconspicuous and annular in female flowers. Ovary ovoid-coniform, lower part of ovary adnate to disk; style short; stigma 4-divided. Berry purple-black, ovoid, 1–2 cm in diam., 2- or 3-seeded. Seeds obovoid-triangular, base sharp, apex rounded or retuse. Fl. Apr–May, fr. Sep–Dec.

• Mixed forests, rocky shrublands on hillsides; 1200–1800 m. Guangxi, Guizhou, Yunnan.

33. *Tetrastigma macrocorymbum* Gagnepain ex J. Wen, Boggan & Turland, *sp. nov.*

伞花崖爬藤 *san hua ya pa teng*

Type: Vietnam. “Tonkin: Moc-chau, prov. de Sonla,” *Pé-telot 7826* (holotype, P).

Frutex scandens. Ramuli teretes. Folia 5-pedata, foliolis obovato-ellipticis vel ellipticis, 4–16 cm longis, 2.5–6 cm latis. Cymae axillares, laxis, pedunculo 2–3 cm longo. Petala elliptica, 1.8–2.8 mm longa, apice galeata. Ovarium pubescens.

Lianas, woody. Branchlets terete, with longitudinal ridges and conspicuous lenticels, glabrous. Leaves pedately 5-foliolate; petiole 4–8 cm; central petiolule 1–2.5 cm, petiolules of lateral leaflet complex 0.7–2 cm, lateral petiolules 4–10 mm, glabrous; leaflets obovate-elliptic or elliptic, 4–16 × 2.5–6 cm, glabrous, lateral veins 6 or 7 pairs, veinlets inconspicuously raised, base rounded or broadly cuneate, base of lateral leaflets asymmetric, margin with undulate teeth, apex acute or cuspidate. Compound dichasium axillary, loosely arranged; peduncle 2–3 cm, pubescent or glabrous. Pedicel 3–4 mm, pubescent. Buds ovoid-elliptic, 2–3 mm, apex obtuse. Calyx cupular, pubescent, margin undulate, teeth inconspicuous. Petals elliptic, 1.8–2.8 mm, apex galeate, pubescent. Disk inconspicuous in female flowers. Ovary coniform, pubescent; style short; stigma deeply 4-lobed. Berry spheroid, 1–1.3 cm in diam., 1- or 2-seeded. Seeds obtriangular, base gradually tapering, apex retuse, rostrum sharp. Fl. Apr–May, fr. Jun–Oct.

Shrublands or forests on hillsides or riversides; 1000–1500 m. Yunnan [Vietnam].

This name was previously published by Gagnepain (in Humbert, Fl. Indo-Chine, Suppl. 1: 877. 1950) but not validly so because no Latin description or diagnosis was provided (*Vienna Code*, Art. 36.1).

34. *Tetrastigma jingdongense* C. L. Li, *Acta Bot. Yunnan.* 19: 220. 1997 [*“jingdongensis”*].

景东崖爬藤 *jing dong ya pa teng*

Lianas, woody. Branchlets terete, with conspicuous longitudinal ridges and sparse lenticels, glabrous. Leaves pedately 7-foliolate; petiole 3–9 cm; central petiolule 5–8 mm, petiolules of lateral leaflet complex 3–8 mm, lateral petiolules very short or lateral leaflets sessile, glabrous; leaflets lanceolate, 4–10 × 1–2.5 cm, glabrous, lateral veins 5–9 pairs, veinlets inconspicuous, margin 5–11-toothed on each side. Inflorescence axillary, usually leaf-opposed on lateral branches, umbelliform, 5–18 cm; peduncle 3.5–9 cm, glabrous. Pedicel 1.5–2 mm, glabrous. Petals elliptic or oval, 1–2 mm, apex rounded, glabrous. Filaments filiform; anthers yellow, oval. Disk well developed in both female and male flowers, 4-lobed. Lower part of ovary adnate to disk; style inconspicuous; stigma expanded, 4-lobed. Fl. Jun–Jul.

• Forests in valleys; 2000–2100 m. Yunnan.

35. *Tetrastigma delavayi* Gagnepain, *Notul. Syst. (Paris)* 1: 378. 1911.

七小叶崖爬藤 *qi xiao ye ya pa teng*

Tetrastigma delavayi f. *majus* W. T. Wang.

Lianas, woody. Stem tuberculate. Branchlets terete, with longitudinal ridges and distinct lenticels, glabrous; tendrils bifurcate. Leaves pedately 7- or 8-foliolate; petiole 3–10(–18) cm; central petiolule 0.8–2 cm, petiolules of lateral leaflet complex usually ca. as long as that of central petiolule, lateral petiolules very short or lateral leaflets sessile, glabrous; central leaflet obovate-elliptic or lanceolate, 8–15(–21) × 2–7 cm, lateral leaflets 2.5–15 cm, glabrous, lateral veins 5–9 pairs, veinlets inconspicuous, margin 5–15-toothed on each side. Inflorescence umbelliform, axillary, or leaf-opposed or pseudo-terminal on lateral branches, 4–13 cm; peduncle 5–8 cm, pubescent. Pedicel 1–3 mm, pilose. Petals elliptic or oval, 1.3–1.7 mm, apex galeate, glabrous. Stamens 4; filaments filiform, longer than pistil in male flowers; anthers yellow, oval. Disk developed either in female or male flowers, 4-lobed. Lower part of ovary adnate to disk; style inconspicuous; stigma expanded, 4-lobed. Berry purple at maturity, spheroid, 0.8–1.5 cm in diam., 3- or 4-seeded. Seeds obovoid-triangular, base attenuate to rostrum, apex retuse. Fl. Jun–Jul, fr. Oct–Mar.

Forests or shrublands in valleys; 1000–2500 m. Guangxi, Guizhou, Yunnan [Myanmar, Vietnam].

36. *Tetrastigma tsaiantum* C. Y. Wu, *Chin. J. Appl. Environ. Biol.* 1: 329. 1995.

蔡氏崖爬藤 *cai shi ya pa teng*

Lianas, woody. Branchlets terete, with conspicuous lenticels, glabrous. Leaves pedately 5-foliolate; petiole 5–8 cm; central petiolule 1.5–2 cm, petiolules of lateral leaflet complex 1–1.5 cm, lateral petiolules short or lateral leaflets sessile, glabrous; leaflets obovate-elliptic, 6.5–9.5 × 3–3.7 cm, glabrous, lateral veins 4–7 pairs, veinlets inconspicuous, base cuneate, base of lateral leaflets asymmetric, margin 12- or 13-toothed on each side, apex mucronate. Inflorescence umbelliform, axillary; peduncle 0.5–2 cm, pubescent, then glabrescent. Pedicel 1–3 mm, pubescent. Buds ovoid, 1–1.2 mm. Calyx cupular, pubescent, margin with irregular teeth and ciliate. Petals elliptic, apex galeate, glabrous. Filaments short; anthers yellow, ovoid-elliptic. Disk inconspicuous. Ovary spheroid; pistil minute at base of calyx in male flowers; style short; stigma 4-divided. Fl. May.

• Forests; 1700–1800 m. Yunnan.

37. *Tetrastigma hemsleyanum* Diels & Gilg, *Bot. Jahrb. Syst.* 29: 463. 1900.

三叶崖爬藤 *san ye ya pa teng*

Tetrastigma alatum H. L. Li; *T. bioritsense* (Hayata) Hsu & Kuoh; *T. dentatum* (Hayata) H. L. Li; *Vitis bioritsensis* Hayata; *V. dentata* Hayata; *V. esquirolii* H. Léveillé & Vaniot; *V. labordei* H. Léveillé & Vaniot.

Lianas, slender. Branchlets with longitudinal ridges, glabrous or sparsely pilose; tendrils unbranched. Leaves 3-foliolate; petiole 2–7.5 cm; petiolules winged adaxially, glabrous or sparsely pilose, central petiolule 0.5–1.8 cm, lateral petiolules

3–5 mm; leaflets lanceolate, elliptic-lanceolate, or ovate-lanceolate, 3–10 × 1.5–3 cm, glabrous, lateral veins 5 or 6 pairs, veinlets inconspicuous, base cuneate or rounded, base of lateral leaflets asymmetric and subrounded, margin with 4–9 teeth on each side, apex acuminate, rarely acute. Inflorescence small umbelliform dichasium, axillary, 1–5 cm, with nodes and bracts, or pseudoterminal without nodes and bracts; peduncle 1.2–2.5 cm, pubescent. Pedicel 1–2.5 mm, gray pilose. Buds oval, 1.5–2 mm, apex rounded. Calyx saucer-shaped; teeth fine, ovate-triangular. Petals ovate, 1.3–1.8 mm, apex corniculate, glabrous. Stamen 4; anthers yellow. Disk conspicuous, 4-lobed. Ovary coniform, lower part of ovary adnate to disk; style short; stigma 4-lobed. Berry globose or obovoid-spheroid, ca. 6 mm in diam., 1-seeded. Seed obovoid-elliptic, base rounded, apex retuse, surface smooth. Fl. Apr–Jun, fr. Aug–Nov.

Forests, shrublands, valleys, rocky crests; 300–1300 m. Chongqing, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [India].

38. *Tetrastigma formosanum* (Hemsley) Gagnepain, Notul. Syst. (Paris) 1: 321. 1911.

台湾崖爬藤 tai wan ya pa teng

Vitis formosana Hemsley, Ann. Bot. 9: 151. 1895.

Lianas, woody, slender. Branchlets terete, with longitudinal ridges, glabrous; tendrils unbranched. Leaves 3-foliolate; petiole 1–2 cm; petiolules 2–3 cm, glabrous; leaflets elliptic, 4–6(–8) × 2–3 cm, glabrous, lateral veins of central leaflet 7–9 pairs, veinlets conspicuously raised abaxially, inconspicuous adaxially, base truncate, margin with 5 or 6 fine teeth on each side, apex obtuse; lateral leaflets ovate-elliptic, 4–6 × 2.4–2.8 cm, lateral veins 5–7 pairs, base cuneate or subrounded, margin with 3–7 fine teeth. Inflorescence umbelliform, axillary, 1.5–2 cm, with nodes and oval bracts; peduncle 4–5 cm, glabrous. Pedicel 1–3 mm, glabrous. Buds elliptic, 2–3 mm, apex rounded. Calyx saucer-shaped, glabrous; teeth triangular, apex acute. Petals triangular-elliptic, apex with scarce papillose hairs. Filaments filiform; anthers elliptic. Disk conspicuous, 4-lobed. Berry obovoid-elliptic, 6–8 × 5–6 mm, 1-seeded. Seed obovoid-elliptic, base rostrate, apex subrounded. Fl. Mar–Apr.

• Shrublands. Taiwan.

39. *Tetrastigma lanyuense* C. E. Chang, Bull. Taiwan Prov. Pingtung Inst. Agric. 9: 23. 1968 [*“lanyuensis”*].

兰屿崖爬藤 lan yu ya pa teng

Cissus lanyuensis (C. E. Chang) F. Y. Lu.

Lianas, woody. Branchlets terete, slender, glabrous; tendrils unbranched. Leaves palmately 5-foliolate or 3-foliolate; petiole 5–10 cm; central petiolule 2–2.5 cm, lateral petiolules 1–2 cm, glabrous; leaflets 7–12 × 4–6.2 cm, glabrous, lateral veins 5–9 pairs, veinlets inconspicuously raised; central leaflet elliptic, base broadly cuneate, margin undulate with 8–10 fine teeth on each side, apex acute or obtuse; lateral leaflets ovate-elliptic, base cuneate and asymmetric, margin undulate with 5–7 teeth. Cyme leaf-opposed or pseudoterminal; peduncle ca. 3.5 cm, glabrous. Pedicel 3–4 mm, glabrous. Buds ovoid-elliptic, 2–2.5 mm. Calyx glabrous, 4-lobed, teeth fine. Petals ovate-

elliptic, apex hooked, glabrous. Disk inconspicuous and annular in male flowers. Ovary coniform, lower part adnate to disk; style short; stigma 4-lobed. Berry obovoid, 0.8–1.2 cm in diam., 2-seeded. Seed obovoid, base rostrate, apex rounded, surface corrugated. Fl. Jul, fr. Aug.

• On trees or shrubs. S Taiwan (Lan Yu).

40. *Tetrastigma hypoglaucum* Planchon, Bull. Soc. Bot. France 33: 459. 1886.

叉须崖爬藤 cha xu ya pa teng

Tetrastigma obtectum (Wallich ex M. A. Lawson) Planchon ex Franchet subsp. *dichotomum* W. T. Wang; *T. sino-dichotomum* W. T. Wang.

Lianas, woody, slender. Branchlets terete, with longitudinal ridges, glabrous; tendrils bifurcate. Leaves palmately 5-foliolate; stipules brown, oval, 3–5 × 2.5–3.5 mm, persistent; petiole 1.5–3.5 cm; lateral petiolules very short or lateral leaflets sessile, glabrous; central leaflet lanceolate, lateral leaflets elliptic, 1.5–5 × 0.5–1.5 cm, glabrous, lateral veins 4 or 5 pairs, veinlets inconspicuous, base cuneate, base of lateral leaflets asymmetric and subrounded, margin 3–6-toothed on each side, teeth sharp, apex acute or acuminate. Simple umbel axillary, or leaf-opposed on lateral branches; peduncle 1.5–3 cm, glabrous. Pedicel 3–5 mm, glabrous. Buds oval, ca. 1.5 mm. Calyx glabrous, with undulate margin. Petals ovate-elliptic, hooked at apex, glabrous. Stamens inconspicuous in female flowers. Ovary coniform; style short; stigma 4-lobed. Berry spheroid, 6–8 mm in diam., 1–3-seeded. Seed elliptic, base rostrate, apex subrounded. Fl. Jun, fr. Aug–Sep.

• Forests or shrublands in valleys; 2300–2500 m. Sichuan, Yunnan.

41. *Tetrastigma serrulatum* (Roxburgh) Planchon in A. Candolle & C. Candolle, Monogr. Phan. 5: 432. 1887.

狭叶崖爬藤 xia ye ya pa teng

Lianas, slender. Branchlets terete, with longitudinal ridges; tendrils bifurcated or sometimes unbranched. Leaves pedately 5-foliolate; petiole 1–5.5 cm; central petiolule 0.5–1.3 cm, petiolules of lateral leaflet complex 2–10 mm, lateral petiolules short or lateral leaflets sessile; leaflets ovate-lanceolate, 1.5–9 × 0.5–3 cm, lateral veins 4–8 pairs, veinlets conspicuously raised, base rounded or cuneate, base of lateral leaflets asymmetric, margin undulate with 5–8 fine teeth on each side, apex caudate, acuminate, or acute. Inflorescence umbelliform, axillary, 1–8 cm, with nodes and bracts; peduncle 1–5 cm. Pedicel 2–4 mm. Buds ovoid-elliptic, 2–4 mm. Calyx minute; teeth inconspicuous. Petals ovate-elliptic, apex corniculate, glabrous or nearly so. Filaments filiform; anthers yellow, oval. Disk developed and 4-divided in male flowers, annular in female flowers. Lower part of ovary adnate to disk; style short; stigma expanded and irregularly divided. Berry purple-black at maturity, spheroid, 0.8–1.2 cm in diam., 2-seeded. Seeds obovoid-elliptic, base attenuate to a short rostrum, apex subrounded. Fl. Mar–Jun, fr. Jul–Nov.

Forests in valleys, shrublands on hillsides, rocky gaps; 500–2900

m. Guangdong, Guangxi, Guizhou, Hunan, Sichuan, Xizang, Yunnan [Bhutan, India, Myanmar, Nepal, Thailand].

- 1a. Branchlets, petioles, and peduncles
glabrous 41a. var. *serrulatum*
1b. Branchlets, petioles, and peduncles
pubescent 41b. var. *puberulum*

41a. *Tetrastigma serrulatum* var. *serrulatum*

狭叶崖爬藤(原变种) xia ye ya pa teng (yuan bian zhong)

Cissus serrulata Roxburgh, Fl. Ind. 1: 432. 1820; *C. napaulensis* Candolle; *Tetrastigma indicum* Maulik; *T. napaulense* (Candolle) C. L. Li; *Vitis capreolata* D. Don; *V. mairei* H. Léveillé (1909, not 1912), p.p. as to *Maire* 412.

Branchlets, petioles, leaves, and peduncles glabrous. Pedicel glabrous or nearly so. Fl. Mar–Jun, fr. Jul–Oct.

Forests in valleys, shrublands on hillsides, rocky gaps; 500–2900 m. Guangdong, Guangxi, Guizhou, Hunan, Sichuan, Yunnan [Bhutan, India, Myanmar, Nepal, Thailand].

41b. *Tetrastigma serrulatum* var. *puberulum* W. T. Wang, Acta Phytotax. Sin. 17(3): 83. 1979.

毛狭叶崖爬藤 mao xia ye ya pa teng

Tetrastigma hypoglaucum Planchon var. *puberulum* W. T. Wang & Z. Y. Cao; *T. napaulense* var. *puberulum* (W. T. Wang) C. L. Li; *T. serrulatum* var. *puberulum* (W. T. Wang & Z. Y. Cao) C. L. Li (1995), not W. T. Wang (1979); *T. serrulatum* var. *pubinervium* C. L. Li.

Branchlets, petioles, abaxial veins of leaves, peduncles, and pedicels pubescent. Fl. Jun, fr. Aug–Nov.

- Forests in valleys; 2300–2600 m. Xizang, Yunnan.

2. *Tetrastigma* subg. *Palmicirrata* C. L. Li, Chin. J. Appl. Environ. Biol. 1: 331. 1995.

掌须亚属 zhang xu ya shu

Tendrils palmately branched. Compound cyme. Seeds spheroid; hilum elliptic at back, surface with netlike ornamentations.

Three species: E Asia to Indochinese peninsula; three species (two endemic) in China.

42. *Tetrastigma triphyllum* (Gagnepain) W. T. Wang, Acta Phytotax. Sin. 17(3): 83. 1979.

菱叶崖爬藤 ling ye ya pa teng

Lianas, semiwoody. Branchlets terete, with longitudinal ridges; tendrils digitately 4–7-branched. Leaves 3-foliolate; petiole 1.5–9.5 cm; central petiolule 5–6 mm, lateral petiolules 3–4 mm; leaflets rhombic-oval or elliptic, 3–11 × 1.5–7 cm, lateral veins 6 or 7 pairs, veinlets inconspicuous, base of central leaflet cuneate, base of lateral leaflets asymmetric and subrounded, margin undulate with 6 or 7 teeth on each side, teeth apiculate, apex acuminate or acute. Compound umbel, pseudoterminal on lateral branches, base with 1 or 2 leaves, 2.5–5.5 cm; peduncle 1–3 cm. Pedicel 2–3 mm. Buds oval, 1.5–2.5 mm, apex rounded. Calyx shallow and saucer-shaped; teeth 4. Petals elliptic, 1.5–2.3 mm, apex pileate. Filaments filiform; anthers yellow, oblong, distinctly short and abortive in female flowers. Disk distinct and 4-lobed in male flowers, annular in female flowers. Ovary coniform, lower part adnate to disk; style inconspicuous; stigma expanded, 4-lobed. Berry spheroid, 7–10 mm in diam., 1- or 2-seeded. Seeds elliptic, base rostrate, apex rounded. Fl. Feb–Apr, fr. Jun–Nov.

- Forests, rocky gaps; 700–2000 m. Sichuan (Mianning), Yunnan.

- 1a. Plants glabrous 42a. var. *triphyllum*
1b. Branchlets, leaves, petioles, and
pedicels densely pilose 42b. var. *hirtum*

42a. *Tetrastigma triphyllum* var. *triphyllum*

菱叶崖爬藤(原变种) ling ye ya pa teng (yuan bian zhong)

Tetrastigma yunnanense Gagnepain var. *triphyllum* Gagnepain, Notul. Syst. (Paris) 1: 271. 1910.

Branchlets, petioles, leaves, peduncles, pedicels, and petals glabrous. Fl. Feb–Apr, fr. Jun–Nov.

- Forests in valleys or on hillsides; 700–2000 m. Sichuan (Mianning), Yunnan.

42b. *Tetrastigma triphyllum* var. *hirtum* (Gagnepain) W. T. Wang, Acta Phytotax. Sin. 17(3): 84. 1979.

毛菱叶崖爬藤 mao ling ye ya pa teng

Tetrastigma yunnanense f. *hirtum* Gagnepain, Notul. Syst. (Paris) 1: 271. 1910.

Branchlets, petioles, leaves, and pedicels densely pilose. Fl. Mar–Apr, fr. Aug–Nov.

- Forests, rocky gaps. Yunnan.

43. *Tetrastigma yunnanense* Gagnepain, Notul. Syst. (Paris) 1: 270. 1910.

云南崖爬藤 yun nan ya pa teng

Lianas, semiwoody. Branchlets terete, with longitudinal ridges; tendrils digitately 4–9-branched. Leaves palmately 5-foliolate; stipules conspicuous, brown, oval, persistent; petiole 3–9(–11) cm; leaflets obovate-elliptic, rhombic-ovate, lanceolate, or obovate-lanceolate, 2–10 × 1–5 cm, lateral veins 6 or 7 pairs, veinlets inconspicuous, base cuneate, margin undulate and 6–8-toothed on each side, apex acuminate, or acute, rarely rounded. Compound umbel pseudoterminal, or leaf-opposed, rarely axillary, 2–8 cm. Pedicel 1.5–4 mm. Buds oval or obovoid, 2–3 mm, apex rounded. Calyx shallow and saucer-shaped, margin undulate. Petals oval or ovate-elliptic, 1.8–2.7 mm, apex rounded. Stamens with oval anthers, undeveloped in female flowers. Disk conspicuous in male flowers, thin in female flowers. Ovary coniform, lower part adnate to disk; style short; stigma expanded, 4-lobed. Berry spheroid, 8–10 mm in diam., 1- or 2-seeded. Seeds elliptic, flat, base rostrate, apex rounded. Fl. Apr–May, fr. Sep–Nov.

- Forests by rivers, shrublands on hillsides; 1200–2600 m. Xizang, Yunnan.

Tetrastigma yunnanense var. *glabrum* W. T. Wang (Bull. Bot. Res., Harbin 6(4): 23. 1986), described from Yunnan, could not be treated here because no material was seen by the authors.

- 1a. Branchlets sparsely pilose then glabrescent; petioles glabrous or sparsely pilose 43a. var. *yunnanense*
 1b. Branchlets, petioles, and peduncles ferruginous pilose 43b. var. *mollissimum*

43a. *Tetrastigma yunnanense* var. *yunnanense*

云南崖爬藤(原变种) yun nan ya pa teng (yuan bian zhong)

Tetrastigma yunnanense var. *pubipes* W. T. Wang.

Branchlets sparsely pilose then glabrescent. Leaves glabrous. Petioles and pedicels glabrous or sparsely pilose. Fl. Apr, fr. Oct–Nov.

- Forests by rivers; 1200–2500 m. Xizang, Yunnan.

43b. *Tetrastigma yunnanense* var. *mollissimum* C. Y. Wu ex W. T. Wang, Acta Phytotax. Sin. 17(3): 84. 1979.

贡山崖爬藤 gong shan ya pa teng

Branchlets, petioles, and peduncles ferruginous pilose. Fl. May, fr. Sep–Oct.

- Shrublands on hillsides; 1500–2600 m. Yunnan.

44. *Tetrastigma obtectum* (Wallich ex M. A. Lawson) Planchon ex Franchet, Bull. Soc. Bot. France 33: 458. 1886.

崖爬藤 ya pa teng

Lianas, semiwoody. Branchlets terete, with longitudinal ridges; tendrils digitately 4–7-branched. Leaves palmately 5-foliolate; stipules brown, oval, membranous, usually persistent; petiole 1–4 cm; petiolules very short or leaflets sessile; leaflets rhombic-elliptic or elliptic-lanceolate, 1–4 × 0.5–2 cm, lateral veins 4 or 5 pairs, veinlets inconspicuous on both surfaces, base cuneate, base of lateral leaflets asymmetric, margin with 3–8 teeth or denticles on each side, apex acuminate, acute, or obtuse. Simple umbel or occasionally 3 or 4 umbels forming a cluster, terminal, or pseudoterminal with 1 or 2 leaves on short branches, 1.5–4 cm; peduncle 1–4 cm. Buds elliptic or ovoid-elliptic, 1.5–3 mm, apex subtruncate or subrounded. Calyx shallow and saucer-shaped, margin undulately lobed. Petals elliptic,

1.3–2.7 mm, apex corniculate. Filaments filiform; anthers yellow, oval, abortive in female flowers. Disk conspicuous, 4-lobed, undeveloped in female flowers. Ovary coniform; style short; stigma expanded, irregularly lobed. Berry spheroid, 5–10 mm in diam., 1-seeded. Seed elliptic, base rostrate, apex rounded. Fl. Apr–Jun, fr. Jul–Nov.

Forests, rocky cliffs on hillsides, boulders, rocks; 100–2600 m. Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Sichuan, Taiwan, Yunnan [Bhutan, Nepal, Vietnam].

- 1a. Branchlets, petioles, peduncles, and pedicels ± pubescent 44a. var. *obtectum*
 1b. Branchlets, petioles, peduncles, and pedicels glabrous 44b. var. *glabrum*

44a. *Tetrastigma obtectum* var. *obtectum*

崖爬藤(原变种) ya pa teng (yuan bian zhong)

Vitis obtecta Wallich ex M. A. Lawson in J. D. Hooker, Fl. Brit. India 1: 657. 1875; *Tetrastigma myanmaricum* Momiyama; *T. obtectum* var. *pilosum* Gagnepain; *T. obtectum* var. *potentilla* (H. Léveillé & Vaniot) Gagnepain; *T. obtectum* var. *trichocarpum* Gagnepain; *V. obtecta* f. *pilosa* (Gagnepain) H. Léveillé; *V. potentilla* H. Léveillé & Vaniot.

Branchlets, petioles, peduncles, and pedicels ± pubescent. Fl. Apr–Jun, fr. Aug–Nov.

Forests, rocks; 200–2400 m. Fujian, Gansu, Guangxi, Guizhou, Henan, Hubei, Hunan, Sichuan, Taiwan, Yunnan [Bhutan, Nepal, Vietnam].

44b. *Tetrastigma obtectum* var. *glabrum* (H. Léveillé) Gagnepain, Notul. Syst. (Paris) 1: 323. 1911.

无毛崖爬藤 wu mao ya pa teng

Vitis potentilla var. *glabra* H. Léveillé, Bull. Soc. Agric. Sarthe 40: 43. 1905; *Tetrastigma umbellatum* (Hemsley) Nakai; *V. arisanensis* (Hayata) Hayata; *V. umbellata* Hemsley; *V. umbellata* var. *arisanensis* Hayata.

Branchlets, petioles, peduncles, and pedicels glabrous. Fl. Mar–May, fr. Jul–Nov.

- Forests, rocks on hillsides or in valleys; 100–2400 m. Fujian, Guangdong, Guangxi, Guizhou, Jiangxi, Sichuan, Taiwan, Yunnan.

7. AMPELOCISSUS Planchon, Vigne Amér. Vitic. Eur. 8: 371. 1884, nom. cons.

酸苣藤属 suan lian teng shu

Ren Hui (任辉); Jun Wen (文军)

Botria Loureiro.

Climbers, woody or herblike, hermaphroditic or polygamo-dioecious. Tendrils unbranched or bifurcate. Leaves simple or compound. Inflorescence a panicle, compound dichasium, or thyrses, leaf-opposed and tendril-bearing. Petals 4 or 5, spreading, free. Stamens 4 or 5. Disk well developed, angular, adnate to ovary, often 5–10-grooved. Style usually short and conical, with ca. 10 ridges; stigma inconspicuously expanded. Berry spheroid or elliptic, 1–4-seeded. Seeds obovoid, suborbicular, or elliptic-oblong, raphe linear, chalazal knot somewhat spatulate in shallow depression; endosperm T-shaped in cross-section. $2n = 40$.

About 90 species: tropical Africa, Asia, Central America, and Oceania; five species (two endemic) in China.

- 1a. Leaves 3-foliolate.

- 2a. Leaflets abaxially densely white woolly, chalazal knot rounded or broadly elliptic 4. *A. artemisiifolia*
 2b. Leaflets abaxially pilose, chalazal knot narrowly elliptic 5. *A. butoensis*
 1b. Leaves simple.
 3a. Branchlets and petioles tomentose and with purple bristles 3. *A. hoabinhensis*
 3b. Branchlets and petioles glabrous or tomentose, but not hispid.
 4a. Leaves cordate-oval, glabrous 1. *A. sikkimensis*
 4b. Leaves broadly ovate, adaxially densely pubescent, abaxially pilose, with woolly hairs on veins 2. *A. xizangensis*

1. Ampelocissus sikkimensis (M. A. Lawson) Planchon, Vigne Amér. Vitic. Eur. 8: 375. 1884.

锡金酸苣藤 xi jin suan lian teng

Vitis sikkimensis M. A. Lawson in J. D. Hooker, Fl. Brit. India 1: 650. 1875.

Lianas, woody. Branchlets terete, with longitudinal ridges, glabrous. Leaves simple; petiole 6–6.5 cm, glabrous; leaflets cordate-oval, 19–21 × 15–16 cm, glabrous, basal veins 5, lateral veins 5 or 6 pairs, veinlets slightly prominent abaxially, inconspicuous adaxially, base cordate, margin finely toothed, apex mucronate. Compound dichasium leaf-opposed, base with a bifurcate tendril; peduncle ca. 8 cm. Pedicel 2–4 mm, nearly glabrous. Berry red, globose, ca. 1 cm in diam., 1- or 2-seeded. Seeds oblong, base rostrate, apex subrounded, chalazal knot narrowly elliptic. Fr. Nov.

Forests; ca. 1100 m. Yunnan (Mengla) [India, Nepal].

2. Ampelocissus xizangensis C. L. Li, Acta Phytotax. Sin. 35: 552. 1997.

西藏酸苣藤 xi zang suan lian teng

Lianas, woody. Branchlets terete, with longitudinal ridges, glabrous or with sparse, white woolly hairs; tendrils bifurcate. Leaves simple; petiole ca. 15 cm, with sparse, brown arachnoid tomentum or glabrescent; leaflets broadly ovate, ca. 23 × 24 cm, abaxially pilose, veins with sparse, brown arachnoid tomentum, adaxially pubescent, basal veins 5, lateral veins 4 or 5 pairs, veinlets slightly prominent abaxially, inconspicuous adaxially, base cordate, margin with fine teeth, apex rounded and obtuse. Compound dichasium leaf-opposed, base cirrose and bifurcate; peduncle ca. 6 cm, with sparse arachnoid tomentum. Pedicel 1–1.5 mm, with sparse glandular hairs. Buds elliptic, 2–2.5 mm, apex rounded. Calyx saucer-shaped, nearly glabrous, undulately lobed. Petals ovate-oblong, 1.5–1.8 mm, glabrous. Stamen 5; anthers oval. Disk obvious, lobed. Lower part of ovary adnate to disk; style short, ca. 10-ridged. Fl. Jul.

Shrublands in valleys; ca. 2000 m. Xizang [Nepal].

3. Ampelocissus hoabinhensis C. L. Li, Acta Phytotax. Sin. 35: 554. 1997.

红河酸苣藤 hong he suan lian teng

Lianas, woody. Branchlets terete, with conspicuous longitudinal ridges, with dense, white or brown arachnoid tomentum and purple bristles; tendrils trifurcate. Leaves simple; stipules caducous; petiole 10–13 cm, with arachnoid tomentum and purple bristles; leaflets broadly ovate, 18–22.5 × 15.5–18 cm, abaxially with arachnoid tomentum, basal veins 5–7 with brown arachnoid tomentum, lateral veins 4–6 pairs, veinlets prominent

abaxially, inconspicuous adaxially, base deeply cordate, margin with sharp teeth, apex acute or mucronate. Panicle leaf-opposed, loose, with brown arachnoid tomentum. Pedicel 1.8–2 mm, glabrous. Buds ovoid-elliptic, ca. 2 mm, apex rounded and obtuse. Calyx saucer-shaped, glabrous, undulately lobed. Petals elliptic, ca. 2 mm, glabrous. Stamen 5; anthers oval. Disk conspicuous, as 5, free, flat glands. Ovary conical; style longer than ovary; stigma conspicuous, expanded, 5-lobed.

Shrublands; 600–800 m. Yunnan [Nepal, Vietnam].

4. Ampelocissus artemisiifolia Planchon, Bull. Soc. Bot. France 33: 458. 1886.

酸苣藤 suan lian teng

Lianas, woody. Branchlets terete, with longitudinal ridges, densely tomentose with white hairs; tendrils bifurcate. Leaves 3-foliolate; petiole 2.5–4 cm; central petiolule absent to 5 mm, lateral petiolule very short, with white arachnoid tomentum, or lateral leaflets sessile; leaflets abaxially with dense white and arachnoid tomentum, adaxially with sparse arachnoid tomentum, lateral veins 4 or 5 pairs, veinlets inconspicuous; central leaflet oval or rhombic, sometimes cleft or divided, 3–6 × 2–3 cm, base cuneate, margin with 5–14 rounded and obtuse teeth on each side, apex acute or acuminate; lateral leaflets oval, 2–5.5 cm, base highly asymmetric, margin with 5–11 rounded and obtuse teeth, apex acute or obtuse. Compound dichasium leaf-opposed, with a tendril at base; peduncle 6–7 cm, with dense, white, arachnoid tomentum. Pedicel 1–2 mm, glabrous. Buds globose, 1.5–2 mm, apex rounded. Calyx saucer-shaped, glabrous, undulately lobed. Petals narrowly oval, 1.4–1.8 mm, glabrous. Anthers oval, nearly quadrate. Disk obvious, undulately lobed. Lower part of ovary adnate to disk, oval; style conical, ca. 10 ridges; stigma slightly expanded. Berry globose, 7–8 mm in diam., 2- or 3-seeded. Seeds oblong, base rostrate, apex subrounded, chalazal knot suborbicular. Fl. Jun, fr. Aug.

• Forests, shrublands; 1600–1800 m. Sichuan, Yunnan.

5. Ampelocissus butoensis C. L. Li, Chin. J. Appl. Environ. Biol. 2: 52. 1996.

四川酸苣藤 si chuan suan lian teng

Lianas, semiwoody. Branchlets terete, with longitudinal ridges, with sparse arachnoid tomentum when young, then falling off; tendrils bifurcate. Leaves 3-foliolate; petiole 1.5–6 cm; central petiolule 0.5–2.5 cm, lateral petiolules 0.3–1.5 cm, glabrous or sparsely pubescent adaxially; leaflets abaxially sparsely pubescent on veins, adaxially with sparse, white, arachnoid tomentum when young, then glabrescent, lateral veins 3–5 pairs, veinlets inconspicuously raised; central leaflet oval or ovate-oblong, usually pinnately 2- or 3-divided, 3–8 × 2–6.5 cm, base cuneate, unlobed leaves with 5–10 obtuse teeth

on each side of margin, apex acute; lateral leaflets oval, 2–6.5 × 1.5–5.5 cm, usually pinnately 2- or 3-divided, base highly asymmetric, margin of unlobed leaflets with 5–7 obtuse teeth, apex acute. Compound dichasium leaf-opposed, base cirrose; peduncle 4–4.5 cm, nearly glabrous. Berry obovoid-ellipsoid,

7–10 × 6–8 mm in diam., 2- or 3-seeded. Seeds oblong, base rostrate, apex subrounded, chalazal knot narrow to elliptic. Fr. Aug.

• Hillsides; 1200–1300 m. Sichuan.

8. VITIS Linnaeus, Sp. Pl. 1: 202. 1753.

葡萄属 pu tao shu

Ren Hui (任辉); Jun Wen (文军)

Ampelovitis Carrière; *Spinovitis* Romanet du Caillaud.

Lianas, woody, usually polygamo-dioecious, rarely hermaphroditic. Bark usually shedding; tendrils leaf-opposed, usually bifurcate. Leaves simple, often lobed, sometimes palmately compound; stipules usually caducous. Inflorescence a thyrses. Flowers 5-merous. Calyx saucer-shaped; sepals minute. Petals united at apex and shed as a cap (calyptra) at anthesis. Stamens opposite to petals, undeveloped and abortive in female flowers. Disk conspicuous, 5-lobed or ring-shaped. Pistil 1; style slender; stigma slightly expanded. Berry globose, 2–4-seeded. Seeds obovoid or obovoid-elliptic, base rostrate, abaxially 1-furrowed with a rounded or suborbicular or elliptic chalazal knot, adaxially 2-furrowed; endosperm M-shaped in cross-section.

About 60 species: mostly in temperate regions, extending to the subtropics with the species diversity primarily in China and E North America; 37 species (30 endemic, one introduced) in China.

Vitis vinifera Linnaeus, the well-known source plant for grapes and wine, has a long history of cultivation all over the world. The wild grape species are primarily distributed in three centers of diversity: East Asia, North to Central America, and Europe to Central Asia. In China, *Vitis* occurs naturally in all provinces except Xinjiang, Qinghai, Nei Mongol, and Ningxia. The roots, stems, and leaves of several wild species are used as medicine; the berries are edible or used to make wine; and the seeds are sometimes used for oil.

Vitis chrysobotrys H. Léveillé & Vaniot (Repert. Spec. Nov. Regni Veg. 3: 350. 1907) is a synonym of *Iodes vitiginea* (Hance) Hemsley, and *V. seguinii* H. Léveillé (Repert. Spec. Nov. Regni Veg. 4: 331. 1907, “*seguini*”) is the basionym of *I. seguinii* (H. Léveillé) Rehder, both in the Icacinaceae (see Fl. China 11).

Vitis mairei H. Léveillé (Repert. Spec. Nov. Regni Veg. 11: 299. 1912, not 7: 338. 1909) and *V. martini* H. Léveillé & Vaniot (Bull. Soc. Agric. Sarthe 40: 41. 1905) are synonyms of *Gynostemma pentaphyllum* (Thunberg) Makino in the Cucurbitaceae (see Fl. China 19).

The following species were described from China but could not be treated here because no material was seen by the authors:

Vitis adenoclada Handel-Mazzetti (Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 62: 145. 1925), described from Hunan.

Vitis jinzhainensis X. S. Shen (Acta Phytotax. Sin. 27: 304. 1989), described from Anhui.

Vitis shifunensis Hayata (Icon. Pl. Formosan. 5: 31. 1915; *V. triphylla* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 63. 1911, not Noronha, 1790), described from Taiwan.

Vitis yuenlingensis W. T. Wang (Bull. Bot. Res., Harbin 9(1): 75. 1989), described from Hunan.

- 1a. Leaves palmately compound with 3–5 leaflets.
 - 2a. Branchlets and inflorescence axes pilose; leaflets abaxially sparsely pubescent, or with woolly hairs when young, becoming sparsely so when mature 10. *V. piasezkii*
 - 2b. Branchlets and inflorescence axes with arachnoid tomentum; leaflets abaxially with persistent ruginous arachnoid tomentum 37. *V. lanceolatifolia*
- 1b. Leaves simple.
 - 3a. Branchlets with prickles, becoming tuberculate on old branches 1. *V. davidii*
 - 3b. Branchlets and old branches without prickles or tubercles.
 - 4a. Branchlets and petioles with setose and glandular hairs, glands with or without a stalk.
 - 5a. Branchlets and petioles with dense glandular as well as simple hairs; leaves inconspicuously 3–5-lobed or unlobed, margin with sharp teeth 2. *V. romanetii*
 - 5b. Branchlets and petioles with sparse glandular hairs; leaves conspicuously 3–5-lobed, margin with obtuse teeth 3. *V. shenxiensis*
 - 4b. Branchlets and petioles pilose or with arachnoid tomentum.
 - 6a. Leaves abaxially with dense white or ruginous arachnoid or woolly tomentum.
 - 7a. Leaves 3–5-lobed or heterophyllous and mixed with undivided ones.
 - 8a. Leaves 3–5-lobed, lobes broad.
 - 9a. Branches with white woolly tomentum, erect hairs absent; tendrils bifurcate 28. *V. heyneana*
 - 9b. Branches pilose; tendrils unbranched or mixed with bifurcate ones 35. *V. sinocinerea*
 - 8b. Leaves 3–5-cleft or deeply parted, mixed with undivided ones.
 - 10a. Leaves of two types, 3–5-cleft and undivided 31. *V. longquanensis*

- 10b. Leaves all divided deeply or at least to middle, sometimes deep lobes pinnatifid, some lobes broad and undivided 36. *V. bryoniifolia*
- 7b. Leaves undivided or inconspicuously 3–5-lobed.
- 11a. Leaves basally deeply cordate, notch rounded or acutely angular, sinuses close together or overlapping.
- 12a. Leaves oval or ovate-elliptic, abaxial veins with woolly tomentum 29. *V. retordii*
- 12b. Leaves suborbicular or quinquangularly rounded, abaxial veins densely pubescent with appressed soft hairs 30. *V. menghaiensis*
- 11b. Leaves basally slightly cordate or subtruncate, sometimes mixed with conspicuously cordate ones.
- 13a. Branchlets and inflorescence axis ± with arachnoid tomentum 28. *V. heyneana*
- 13b. Branchlets and inflorescence axis with variable hairiness (including arachnoid tomentum).
- 14a. Leaves adaxially with sparse arachnoid tomentum when young, then glabrescent; branchlets and inflorescence axis with sparse arachnoid tomentum 32. *V. bellula*
- 14b. Leaves adaxially or only veins with dense, short, appressed hairs; inflorescence axis densely pubescent.
- 15a. Branchlets sparsely pilose; leaves slightly lobed, base truncate, only adaxial veins sparsely pubescent 33. *V. bashanica*
- 15b. Branchlets densely pubescent; leaves undivided, base subcordate, adaxially densely pubescent 34. *V. hui*
- 6b. Leaves abaxially glabrous, or pilose, or with sparse arachnoid tomentum.
- 16a. Leaves abaxially glabrous or only axils of veins with hairs, or young leaves with tomentum then falling off.
- 17a. Leaves sagittate or deltoid-sagittate, 3–5-lobed or cleft, or mixed with undivided ones; inflorescence narrow, small, cylindrical, with basal branches poorly developed.
- 18a. Leaf margin 12–16-toothed on each side, conspicuously ciliate, abaxial veinlets raised 17. *V. wenchowensis*
- 18b. Leaf margin 7–10-toothed on each side, only upper part of margin with very short and sparse hairs, not ciliate, abaxial veinlets conspicuous, but not raised ... 20. *V. ruyuanensis*
- 17b. Leaves variously shaped but neither sagittate nor deltoid-sagittate, undivided.
- 19a. Leaves ovate, oval, elliptic, or ovate-lanceolate, base slightly subcordate or subtruncate.
- 20a. Leaves ovate or oval, not glaucous, veinlets inconspicuous 25. *V. flexuosa*
- 20b. Leaves elliptic or ovate-lanceolate, usually glaucous, veinlets conspicuous and raised 8. *V. chungii*
- 19b. Leaves oval, broadly ovate, or triangular-ovate, base cordate or deeply so.
- 21a. Basal sinuses close together or partly overlaid.
- 22a. Leaves subleathery, margin serrate, apex sharply acute, abaxially usually glaucous, rarely glaucescent 6. *V. chunganensis*
- 22b. Leaves papery, margin coarsely dentate, apex cuspidate, abaxially not glaucous 21. *V. mengziensis*
- 21b. Basal sinuses forming an obtuse angle without any overlapping.
- 23a. Peduncles with sparse arachnoid tomentum when young, then gradually falling off 4. *V. balansana*
- 23b. Peduncles pilose.
- 24a. Leaves oval, apex acute or acuminate, veinlets slightly raised ... 5. *V. yunnanensis*
- 24b. Leaves ovate-oblong or triangular-ovate, apex acuminate, veinlets conspicuously raised 7. *V. luochengensis*
- 16b. Leaves abaxially pilose or at least abaxial veins pilose or with arachnoid tomentum.
- 25a. Leaves conspicuously 3–5-divided or mixed with undivided leaves.
- 26a. Leaves basally deeply cordate, basal sinuses attaching or partly overlapping, margin coarsely toothed (cultivated) 27. *V. vinifera*
- 26b. Leaves basally cordate, basal notch obtuse or rounded, margin shallowly toothed.
- 27a. Tendrils unbranched, rarely bifurcate.
- 28a. Branchlets and petioles sparsely brown villous; leaves undivided or mixed with 2- or 3-cleft leaves, margin with long ciliate hairs 23. *V. hancockii*
- 28b. Branchlets, petioles, and peduncles sparsely pilose; leaves usually 3–5-lobed or cleft, margin not ciliate or only slightly so with short ciliate hairs.

- 29a. Leaves abaxially greenish or lavender, veinlets slightly raised 18. *V. jinggangensis*
- 29b. Leaves abaxially reddish purple, veinlets conspicuously raised on both sides 19. *V. erythrophylla*
- 27b. Tendrils 2(or 3)-branched.
- 30a. Leaves unlobed or 3–5-lobed, lobes broad.
- 31a. Leaves oval or obelliptic, basal sinuses forming an obtuse angle 9. *V. betulifolia*
- 31b. Leaves broadly oval, basal sinuses rounded, rarely forming an obtuse angle 26. *V. amurensis*
- 30b. Leaves 3–5-cleft to middle or deeply parted, lobes narrow, rarely lobes pinnatifid, or sometimes mixed with shallowly lobed leaves.
- 32a. Plants small, stems slender; leaf margin 5–9-toothed on each side 15. *V. silvestrii*
- 32b. Plants strong, stems robust; leaf margin 16–25-toothed on each side 14. *V. zhejiang-adstricta*
- 25b. Leaves undivided, rarely inconspicuously 3–5-lobed.
- 33a. Leaves abaxially with at least veins with arachnoid tomentum, rarely glabrous, never with erect hairs.
- 34a. Inflorescence axis pilose and with arachnoid tomentum 22. *V. fengqinensis*
- 34b. Inflorescence axis with arachnoid tomentum, but not erect hairs.
- 35a. Leaves 7–16 × 5–12 cm, margin 16–20-toothed on each side 12. *V. wilsoniae*
- 35b. Leaves 3–7 × 2.5–6 cm, margin 5–13-toothed on each side 16. *V. wuhanensis*
- 33b. Leaves abaxially with at least veins with erect hairs, or sometimes mixed with arachnoid tomentum.
- 36a. Leaves rhombic-ovate or rhombic-elliptic, base broadly cuneate or suborbicular 23. *V. hancockii*
- 36b. Leaves ovate or oval, base cordate, subcordate, or subtruncate, rarely rounded.
- 37a. Leaves basally conspicuously cordate.
- 38a. Branchlets glabrous; abaxial veins of leaves pilose with spreading brown hairs 11. *V. pilosonerva*
- 38b. Branchlets with sparse woolly tomentum; abaxial veins of leaves with white hairs and with sparse arachnoid tomentum 13. *V. pseudoreticulata*
- 37b. Leaves basally subcordate or subtruncate, rarely rounded.
- 39a. Tendrils bifurcate; leaves oval or ovate-elliptic 9. *V. betulifolia*
- 39b. Tendrils unbranched; leaves ovate or oval-lanceolate 24. *V. tsoi*

1. *Vitis davidii* (Romanet du Caillaud) Föex, Cours Compl. Vitic. 44. 1886.

刺葡萄 *ci pu tao*

Plants polygamo-dioecious. Branchlets prickly or tuberculately so, terete, with longitudinal ridges when young, glabrescent; tendrils bifurcate. Stipules greenish brown, ovate-lanceolate, 2–3 × 1–2 mm, nearly herbaceous, glabrous, caducous; leaf blade oval or oval-elliptic, undivided or shallowly 3-lobed, 5–12 × 4–16 cm, basal veins 5, lateral veins 4 or 5 pairs, veinlets conspicuous and raised, base deeply cordate, margin with 12–33 teeth on each side, teeth sharp, apex acute or mucronate. Panicle leaf-opposed, 7–24 cm, with well-developed basal branches; peduncle 1–2.5 cm, glabrous. Pedicel 1–2 mm, glabrous. Buds obovoid, 1.2–1.5 mm, apex rounded. Sepals minute. Filaments filiform; anthers yellow, elliptic, 0.6–0.7 mm. Ovary conical; style short; stigma expanded. Berry globose, 1.2–2.5 cm in diam. Seeds obovoid-elliptic, apex rounded and obtuse, ventral holes furrowed upward 3/4 from base. Fl. Apr–Jun, fr. Jul–Oct.

- Forests, shrublands, hillsides, valleys; 500–2300 m. Anhui,

Chongqing, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.

Vitis davidii var. *hispida* X. D. Wang & S. C. Chen (Acta Phytotax. Sin. 37: 603. 1999), described from Fujian, could not be treated here because no material was seen by the authors.

- 1a. Leaves abaxially ferruginous pubescent 1c. var. *ferruginea*
- 1b. Leaves abaxially glabrous.
- 2a. Berry purple at maturity 1a. var. *davidii*
- 2b. Berry blue-black at maturity 1b. var. *cyanocarpa*

1a. *Vitis davidii* var. *davidii*

刺葡萄(原变种) *ci pu tao* (yuan bian zhong)

Spinovitis davidii Romanet du Caillaud, Rev. Hort. (Paris) 55: 53. 1883 [“*davidi*”]; *Ampelovitis davidii* (Romanet du Caillaud) Carrière; *Vitis armata* Diels & Gilg; *V. prunisapida* H. Léveillé & Vaniot.

Branchlets with prickles. Leaves abaxially glabrous. Berry purple at maturity. Fl. Apr–Jun, fr. Jul–Oct.

• Shrublands, hillsides, valleys; 600–1800 m. Anhui, Chongqing, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.

1b. *Vitis davidii* var. *cyanocarpa* (Gagnepain) Sargent, Pl. Wilson. 1: 104. 1911.

蓝果刺葡萄 lan guo ci pu tao

Vitis armata var. *cyanocarpa* Gagnepain in Sargent, Pl. Wilson. 1: 104. 1911.

Old branches tuberculate; young branchlets without prickles or only sparsely prickly. Leaves abaxially glabrous. Berry blue-black at maturity. Fl. Apr–May, fr. Aug–Sep.

• Forests, shrublands; 600–2300 m. Anhui, Hubei, Yunnan.

1c. *Vitis davidii* var. *ferruginea* Merrill & Chun, Sunyatsenia 1: 69. 1930.

锈毛刺葡萄 xiu mao ci pu tao

Leaves abaxially ferruginous pubescent on veins. Fl. Apr–Jul.

• Shrublands, hillsides; 500–1200 m. Fujian, Guangdong, Hubei, Jiangxi.

2. *Vitis romanetii* Romanet du Caillaud, Rev. Hort. (Paris) 55: 53. 1883 [“*romaneti*”].

秋葡萄 qiu pu tao

Ampelovitis romanetii (Romanet du Caillaud) Carrière; *Vitis pentagona* Diels & Gilg var. *laotica* Gagnepain; *V. romanetii* var. *arachnoidea* Y. L. Cao & Y. H. He; *V. rutilans* Carrière.

Plants polygamo-dioecious. Branchlets terete, with conspicuous longitudinal ridges, pubescent with simple and glandular hairs; tendrils usually bifurcate or trifurcate. Leaves simple; stipules brown, ovate-lanceolate, 7–12(–14) × 3–5 mm, membranous, glabrous, entire, apex acuminate; petiole 2–6.5 cm, with glandular and simple hairs; leaf blade oval or broadly so, 5.5–16 × 5–13.5 cm, slightly 5-lobed or undivided, abaxially tomentose with long and short hairs, adaxially pubescent, basal veins 5, lateral veins 4 or 5 pairs, veinlets conspicuously raised abaxially, slightly raised adaxially, base deeply cordate, notch acute, rarely obtuse, sometimes two sides overlapping, margin with obtuse teeth, teeth sharp. Panicle loose, leaf-opposed, 5–13 cm, basal branches well developed, sometimes with a tendril below basal branch; peduncle 1.5–3.5 cm, densely pubescent with simple and glandular hairs. Pedicel 1.6–2 mm, glabrous. Buds obovoid, 1.5–2 mm, apex rounded. Calyx cupular, ca. 2 mm, glabrous, subentire. Petals galeate. Filaments filiform, 1.4–1.8 mm; anthers yellow, elliptic, ca. 0.5 mm. Ovary conical; style short; stigma expanded. Berry globose, 7–8 mm in diam. Seeds obovoid, apex rounded and retuse, chalazal knot ovate-elliptic, ventral holes obelliptic. Fl. Apr–Jun, fr. Jul–Sep. $2n = 38$.

Forests, shrublands, hillsides; 100–1500 m. Anhui, Gansu, Henan, Hubei, Hunan, Jiangsu, Shaanxi, Sichuan [Laos].

The berries are edible and used for making wine.

3. *Vitis shenxiensis* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 239. 1996.

陕西葡萄 shan xi pu tao

Plants polygamo-dioecious. Branchlets terete, with longitudinal ridges, sparsely pubescent with simple and stalked glandular hairs, glands 0.8–1 mm; tendrils usually bifurcate. Leaves simple; petiole 4–5.5 cm, sparsely pubescent with simple and glandular hairs; leaf blade oval, conspicuously 3–5-lobed, rarely tripartite or 3-divided, notch obtuse, rarely acute, 11–16 × 9–14 cm, abaxially sparsely pilose, then glabrescent, adaxially nearly glabrous, basal veins 5, lateral veins 5 or 6 pairs, pilose with spreading hairs, rarely glabrous, base cordate, margin irregularly 25–32-toothed, teeth large and obtuse, apex acuminate or mucronulate, rarely acute. Panicle leaf-opposed, loose, 8–9 cm, with well-developed basal branches; peduncle 1.5–2 cm, nearly glabrous. Pedicel 3–4 mm, glabrous. Buds obovoid, 2–2.5 mm, apex rounded. Calyx cupular, glabrous, entire. Filaments filiform, 1.7–2 mm; anthers yellow, elliptic, ca. 0.5 mm. Pistil abortive in male flowers. Berry purple-black at maturity, globose, ca. 1.2 cm in diam. Seeds obovoid, apex retuse, surface smooth. Fl. Jun, fr. Oct.

• Shrublands, hillsides, valleys; 1100–1400 m. Shaanxi.

4. *Vitis balansana* Planchon in A. Candolle & C. Candolle, Monogr. Phan. 5: 612. 1887 [“*balansaeana*”].

小果葡萄 xiao guo pu tao

Branchlets terete, with longitudinal ridges; tendrils bifurcate, leaf-opposed. Stipules brown, oval to oblong, 2–4 × 1.5–3 mm; petiole 2–5 cm; leaf blade adaxially green, cordate-oval or broadly ovate, 4–14 × 3.5–9.5 cm, basal veins 5, lateral veins 4–6 pairs, veinlets conspicuous and raised, base cordate, notch obtuse, margin with 16–22 fine teeth on each side, slightly undulate, apex acute or mucronulate. Panicle leaf-opposed, 4–13 cm. Pedicel 1–1.5 mm. Buds obovoid, 1–1.4 mm, apex rounded. Calyx cupular, entire. Petals galeate. Filaments filiform in male flowers, 0.6–1 mm; anthers yellow, elliptic, ca. 0.4 mm; stamens shorter than pistils in female flowers, abortive. Disk 0.3–0.4 mm. Ovary conical; style short; stigma slightly expanded. Berry purple-black at maturity, globose, 5–8 mm in diam. Seeds obovoid, apex rounded, chalazal knot elliptic. Fl. Feb–Aug, fr. Jun–Nov.

Forests, shrublands, valleys; 200–800 m. Guangdong, Guangxi, Hainan [Vietnam].

- 1a. Leaves 3-cleft 4c. var. *ficifolioides*
 1b. Leaves undivided.
 2a. Branchlets, leaves, and petioles with sparse arachnoid tomentum when young, becoming glabrescent 4a. var. *balansana*
 2b. Branchlets, leaves, and petioles with dense, persistent, white arachnoid tomentum 4b. var. *tomentosa*

4a. *Vitis balansana* var. *balansana*

小果葡萄(原变种) xiao guo pu tao (yuan bian zhong)

Vitis flexuosa Thunberg var. *gaudichaudii* Planchon.

Branchlets, petioles, adaxial leaf surface, inflorescence axes, and peduncles with sparse arachnoid tomentum when young, becoming glabrescent. Stipules glabrous or with arachnoid tomentum. Pedicel and calyx glabrous.

Forests, shrublands in valleys, sunny valleys; 200–800 m. Guangdong, Guangxi, Hainan [Vietnam].

4b. *Vitis balansana* var. *tomentosa* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 240. 1996.

绒毛小果葡萄 rong mao xiao guo pu tao

Branchlets, petioles, abaxial leaf surface, and inflorescences with dense, persistent, white arachnoid tomentum.

- Guangxi.

4c. *Vitis balansana* var. *ficifolioides* (W. T. Wang) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 240. 1996.

龙州葡萄 long zhou pu tao

Vitis ficifolioides W. T. Wang, Acta Phytotax. Sin. 17(3): 75. 1979.

Leaves 3-cleft, notch rounded.

- Guangxi (Longzhou).

5. *Vitis yunnanensis* C. L. Li, Acta Bot. Yunnan. 19: 217. 1997.

云南葡萄 yun nan pu tao

Branchlets terete, with longitudinal ridges, glabrous; tendrils bifurcate. Leaves with caducous stipules; petiole 1.5–4 cm, glabrous; leaf blade oval, 5–10 × 4–7.5 cm, abaxially nearly glabrous, basal veins 5, lateral veins 4 pairs, veinlets slightly raised, base cordate, margin 15–17-toothed on each side, teeth acute, apex acute or mucronulate. Panicle leaf-opposed, loose, base with well-developed branches, rachis densely pubescent. Pedicel glabrous. Berry globose, ca. 1 cm in diam. Seeds obovoid, apex rounded, surface smooth, chalazal knot elliptic, ventral holes furrowed from base to apex. Fr. Aug.

- Forests; 500–1800 m. Yunnan (Jingdong, Jinghong).

6. *Vitis chunganensis* Hu, J. Arnold Arbor. 6: 143. 1925.

东南葡萄 dong nan pu tao

Plants polygamo-dioecious. Branchlets terete; old branches with conspicuous longitudinal ridges, glabrous; tendrils bifurcate. Stipules ovate-elliptic or lanceolate, 1.5–3 × 1–1.5 cm, glabrous, apex obtuse, caducous; petiole 2–6.5 cm, glabrous; leaf blade ovate or ovate-elliptic, 6.5–22.5 × 4.5–13.5 cm, abaxially glaucous, rarely glaucescent, basal veins 5–7, lateral veins 5–7 pairs, veinlets inconspicuous, base cordate, margin 12–22-toothed on each side, teeth small, apex acute, acuminate, or caudate. Panicle leaf-opposed, loose, 5–9 cm, base with well-developed branches, occasionally basal branches reduced to tendrils; peduncle 1–2 cm, pubescent or nearly glabrous. Pedicel 1.2–2 mm, glabrous. Buds globose or elliptic, 1–1.5 mm, glabrous. Calyx ca. 2 mm, glabrous. Filaments filiform, 0.5–0.7 mm; anthers yellow, elliptic, ca. 0.4 mm. Ovary oval; style short, slender; stigma expanded. Berry purple-black at maturity, globose, 0.8–1.2 cm in diam. Seeds obovoid, apex retuse, chalazal knot elliptic. Fl. Apr–Jun, fr. Jun–Aug.

• Forests, shrublands, hillsides, streams in valleys; 500–1400 m. Anhui, Fujian, Guangdong, Guangxi, Hunan, Jiangxi, Zhejiang.

7. *Vitis luochengensis* W. T. Wang, Guihaia 8: 110. 1988.

罗城葡萄 luo cheng pu tao

Branchlets usually purple, terete, with longitudinal ridges, glabrous; tendrils bifurcate. Leaves simple; stipules caducous; petiole 2.5–5 cm, glabrous; leaf blade ovate-oblong or ovate, 12–18 × 4–12 cm, basal veins 5, lateral veins 5 or 6 pairs, veinlets conspicuously raised, base cordate, notch obtuse, margin with 15–21 fine teeth on each side, apex acuminate. Panicle leaf-opposed, ca. 17 cm at fruiting stage, with well-developed branches; peduncle ca. 2.5 cm. Pedicel 4–7 mm, nearly glabrous. Berry globose, ca. 0.5 mm in diam. Fr. May–Jul.

• Forests, shrublands on rocky hills, valleys; 400–700 m. Guangdong, Guangxi.

- 1a. Leaves glabrous 7a. var. *luochengensis*
- 1b. Abaxial veins of leaves with dense white tomentum 7b. var. *tomentosonerva*

7a. *Vitis luochengensis* var. *luochengensis*

罗城葡萄(原变种) luo cheng pu tao (yuan bian zhong)

Leaves glabrous. Fr. Jul.

- Shrublands on rocky hills. Guangxi.

7b. *Vitis luochengensis* var. *tomentosonerva* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 241. 1996 [*“tomentosonerva”*].

连山葡萄 lian shan pu tao

Branchlets, petioles, and abaxial veins of leaves with dense white tomentum. Fr. May.

- Forests, valleys; 400–700 m. Guangdong.

8. *Vitis chungii* F. P. Metcalf, Lingnan Sci. J. 11: 102. 1932.

闽赣葡萄 min gan pu tao

Plants polygamo-dioecious. Branchlets terete, with longitudinal ridges, glabrous; tendrils bifurcate. Leaves simple; stipules brownish, lanceolate, 2.5–3 × 1–1.2 mm, membranous, glabrous, caducous; petiole 1–3.5 cm, glabrous; leaf blade ovate-elliptic or ovate-lanceolate, 4–15 × 2–8 cm, abaxially glabrous, glaucous, basal veins 3, lateral veins 4 or 5 pairs, veinlets raised, glabrous, base truncate, rounded, or subrounded, rarely subcordate, margin sparsely 7–9-toothed on each side, teeth sharp, apex acuminate or caudate, rarely acute. Panicles leaf-opposed, terete, 3.5–10 cm, basal branches poorly developed; peduncle 1.5–2.5 cm, pubescent when young, then glabrescent. Pedicel 1–2.5 mm, glabrous. Buds obovoid, 1–1.4 mm, apex rounded. Calyx entire. Filaments filiform, 0.8–1.2 mm; anthers yellow, elliptic, 0.4–0.5 mm. Ovary oval; style short; stigma expanded. Berry purple-red at maturity, globose, 8–10 mm in diam. Seeds obelliptic, apex rounded, chalazal knot elliptic, ventral holes obelliptic, furrowed upward 3/4 from base.

• Forests in valleys, shrublands, hillsides; 200–1000 m. Fujian, Guangdong, Guangxi, Jiangxi.

9. *Vitis betulifolia* Diels & Gilg, Bot. Jahrb. Syst. 29: 461. 1900.

桦叶葡萄 hua ye pu tao

Vitis hexamera Gagnepain; *V. shimenensis* W. T. Wang; *V. trichoclada* Diels & Gilg.

Branchlets terete, with conspicuous longitudinal ridges and sparse lanate tomentum when young, then becoming glabrescent; tendrils bifurcate, leaf-opposed. Leaves simple; stipules brownish, lanceolate, 2.5–6 × 1.5–3 mm, membranous, glabrous, margin entire, apex acute or obtuse; petiole 2–6.5 cm, with arachnoid tomentum when young, then glabrescent; leaf blade oval or ovate-elliptic, undivided or 3-lobed, 4–12 × 3.5–9 cm, abaxially densely tomentose when young, then hairs falling off and only veins pubescent or nearly glabrous, adaxially pubescent and with sparse arachnoid tomentum when young, then glabrescent, basal veins 5, lateral veins 4–6 pairs, veinlets slightly raised abaxially, base cordate or subtruncate, rarely subrounded on upper leaves, margin 15–25-toothed on each side, teeth sharp, apex acute or acuminate. Panicle leaf-opposed, with well-developed basal branches, loose, 4–15 cm, with arachnoid tomentum when young, then nearly glabrescent. Pedicel 1.5–3 mm, glabrous. Buds obovoid, 1.5–2 mm, apex rounded. Calyx ca. 0.2 mm, margin membranous, entire. Filaments filiform, 1–1.5 mm; anthers yellow, elliptic, ca. 0.4 mm. Ovary oval; style short. Berry purple-black at maturity, globose, 8–10 mm in diam. Seeds obovoid, apex rounded, chalazal knot rounded or elliptic, ventral holes furrowed upward 2/3–3/4 from base. Fl. Mar–Jun, fr. Jun–Nov.

• Forests in valleys, shrublands, hillsides; 600–3600 m. SE Gansu, Henan, Hubei, Hunan, Shaanxi, Sichuan, Yunnan.

10. *Vitis piasezkii* Maximowicz, Bull. Acad. Imp. Sci. Saint-Pétersbourg 27: 461. 1881.

变叶葡萄 bian ye pu tao

Parthenocissus sinensis Diels & Gilg; *Vitis baihensis* P. C. He; *V. pagnuccii* Romanet du Caillaud; *V. piasezkii* var. *baroniana* Diels & Gilg; *V. piasezkii* var. *pagnuccii* (Romanet du Caillaud) Rehder; *V. tiubaensis* X. L. Niu.

Branchlets terete, with longitudinal ridges; tendrils bifurcate, leaf-opposed. Leaves highly variable in shape, 3–5-foliate, or mixed with simple and unlobed, or simple and variously lobed leaves; stipules caducous; petiole 2.5–6 cm; leaf and leaflet blades adaxially nearly glabrous, or pilose and lanate, basal veins 5, lateral veins 4–6 pairs, pubescent to sometimes slightly so or nearly glabrescent, veinlets slightly raised abaxially, inconspicuous adaxially; central leaflet rhombic-elliptic or lanceolate, 5–12 × 2.5–5 cm, base cuneate, apex acute or mucronulate; lateral leaflets ovate-elliptic or ovate-lanceolate, 3.5–9 × 3–5 cm, base asymmetric, subrounded or broadly truncate, margin with 5–20 sharp teeth on each side, apex acute or acuminate; simple leaves oval or ovate-elliptic, 5–12 × 4–8 cm, base cordate, notch obtuse, margin serrate with 21–31 teeth, apex acute. Panicle leaf-opposed, loose, 5–12 cm, basal branches well developed; peduncle 1–2.5 cm. Pedicel 1.5–2.5 mm, glabrous. Buds obovoid, 1–2.5 mm, apex rounded. Calyx glabrous, margin undulate. Filaments filiform,

0.7–1 mm. Ovary oval; style short; stigma expanded. Berry black-purple, globose, 0.8–1.3 in diam., glaucous. Seeds obovoid, apex retuse, chalazal knot oval, ventral holes furrowed upward 1/4 from base. Fl. Jun, fr. Jul–Sep.

• Forests, forest margins, shrublands, hillsides, riversides, usually in sunny and disturbed areas; 900–2100 m. Chongqing, Gansu, Hebei, Henan, Shaanxi, Shanxi, Sichuan, Zhejiang.

11. *Vitis pilosonerva* F. P. Metcalf, Lingnan Sci. J. 11: 14. 1932 [*“pilosonerva”*].

毛脉葡萄 mao mai pu tao

Vitis davidii (Romanet du Caillaud) Föex var. *brachytricha* Merrill.

Plants polygamo-dioecious. Branchlets terete, with conspicuous longitudinal ridges, glabrous; tendrils bifurcate, leaf-opposed. Leaves simple; stipules caducous; petiole 3.5–11 cm, sparsely pilose; leaf blade broadly oval, inconspicuously 3-lobed, 10–16 × 9–14 cm, abaxially glaucous, densely pubescent on veins, basal veins 5, lateral veins 5–8 pairs, veinlets raised, base cordate, apex of notch acute, margin 28–36-toothed on each side, teeth large and sharp, apex acute or mucronulate. Panicle leaf-opposed, loose, 15–34 cm, with well-developed branches; peduncle 5–9 cm, subglabrate. Pedicel 1.5–2 mm, nearly glabrous. Buds obovoid, ca. 1.5 mm, apex rounded. Calyx glabrous, subentire, teeth 0.1–0.2 mm. Filaments filiform, ca. 1 mm; anthers yellow, elliptic, ca. 0.4 mm. Ovary abortive in male flowers. Fl. Jun.

• Forests, hillsides, valleys; 700–800 m. Fujian, Guangdong, Jiangxi.

12. *Vitis wilsoniae* H. J. Veitch, Gard. Chron. 46: 236. 1909 [*“wilsonae”*].

网脉葡萄 wang mai pu tao

Vitis marchandii H. Léveillé; *V. reticulata* Pampanini (1910) and Gagnepain (1911), not M. A. Lawson (1875).

Branchlets terete, with longitudinal ridges, with sparse, brownish arachnoid tomentum; tendrils bifurcate, leaf-opposed. Leaves simple; stipules caducous; petiole 4–8 cm, nearly glabrous; leaf blade cordate to ovate-elliptic, 7–16 × 5–12 cm, abaxially with brownish arachnoid tomentum on veins, adaxially glabrous or nearly so, basal veins 5, lateral veins 4 or 5 pairs, veinlets raised, base cordate, notch obtuse, margin 16–20-toothed on each side, apex acute or acuminate. Panicle leaf-opposed, loose, 4–16 cm, with well-developed basal branches; peduncle 1.5–3.5 cm, with sparse arachnoid tomentum. Pedicel 2–3 mm, glabrous. Buds obelliptic, 1.5–3 mm, apex subtruncate. Calyx undulately lobed. Filaments filiform, 1.2–1.6 mm; anthers yellow, ovoid-elliptic, 0.8–1.2 mm. Ovary oval; style short; stigma expanded. Berry globose, 0.7–1.5 cm in diam. Seeds obovoid, apex globose, chalazal knot oblong, raphe slightly raised, surface smooth, ventral holes furrowed from base to nearly 1/4 near apex. Fl. May–Jul, fr. Jun–next Jan.

• Forests, shrublands, valleys, streamsides; 400–2000 m. Anhui, Chongqing, Fujian, Gansu, Guizhou, Henan, Hubei, Hunan, Shaanxi, Sichuan, Yunnan, Zhejiang.

13. *Vitis pseudoreticulata* W. T. Wang, Acta Phytotax. Sin. 17(3): 73. 1979.

华东葡萄 hua dong pu tao

Plants polygamo-dioecious. Branchlets terete, with conspicuous longitudinal ridges, sparsely lanate when young, becoming glabrescent; tendrils bifurcate, leaf-opposed. Leaves simple; stipules caducous; petiole 3–6 cm, with long villous arachnoid tomentum when young, then falling off and pubescent; leaf blade oval or oblong, 6–13 × 5–11 cm, both surfaces with villous tomentum when young, then becoming sparsely so, abaxially whitish pubescent on lateral veins, basal veins 5, lateral veins 3–5 pairs, veinlets conspicuous abaxially, base deeply cordate to cordate, notch rounded or obtuse, margin 16–25-toothed on each side, teeth sharp and slightly irregular, apex acute or acuminate, rarely rounded. Panicle leaf-opposed, loose, 5–11 cm, basal branches well developed, sometimes with a tendril below basal branch, with sparse arachnoid tomentum when young, then falling off. Pedicel 1–1.5 mm, glabrous. Buds obovoid, 2–2.5 mm, apex rounded. Calyx glabrous, teeth inconspicuous. Filaments filiform, ca. 1 mm; anthers yellow, elliptic, ca. 0.2 × 0.1 mm. Ovary conical; style short. Berry purple-black at maturity, globose, 8–10 mm in diam. Seeds obovoid, apex retuse, chalazal knot elliptic, ventral mid-raphé slightly raised. Fl. Apr–Jun, fr. Jun–Oct.

Forests, shrublands, hillsides, grasslands, riversides; 100–300 m. Anhui, Fujian, Guangdong, Guangxi, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Zhejiang [Korea].

14. *Vitis zhejiang-adstricta* P. L. Chiu, Bull. Bot. Res., Harbin 10(3): 39. 1990.

浙江夔夔 zhe jiang ying yu

Branchlets terete, slender, with thin longitudinal ridges, with sparse arachnoid tomentum when young, eventually subglabrate; tendrils bifurcate, leaf-opposed. Leaves simple, 3–5-lobed to parted, usually mixed with undivided leaves; petiole 2–4 cm, sparsely pubescent; leaf blade ovate or ovate-pentagonal, 3–6 × 3–5 cm, both surfaces with sparse very short fine hairs and midvein with fine stiff hairs, basal veins 5, lateral veins 3–5 pairs, veinlets slightly raised abaxially, base cordate, notch rounded to acute, teeth obtuse, apex acute or acuminate; midlobes rhombic-ovate, base constricted, notch rounded. Panicle 3.5–8 cm, glabrous or subglabrate; peduncle 1–3 cm; bract narrowly triangular, margin ciliate, then cilia falling off. Pedicel 2–3 mm, glabrous. Berry globose, 6–8 mm in diam.

• By streams in valleys; 600–700 m. Zhejiang.

15. *Vitis silvestrii* Pampanini, Nuovo Giorn. Bot. Ital., n.s., 17: 430. 1910.

湖北葡萄 hu bei pu tao

Plants polygamo-dioecious. Branchlets terete, slender, with longitudinal ridges, densely pubescent, eventually glabrescent; tendrils bifurcate, leaf-opposed. Leaves simple; stipules brownish, lanceolate, 1.5–2 × 0.5–1 mm, membranous, sparsely pilose or glabrate; petiole 1–3 cm, pubescent; leaf blade oval, 3–5 × 2–3 cm, 3–5-lobed or parted, abaxially pubescent, adaxially

sparsely pubescent when young, then glabrescent, basal veins 5, lateral veins 3 or 4 pairs, base subcordate or subtruncate, notch retuse to obtuse, rarely acute or rounded, margin 5–9-toothed on each side, teeth obtuse, apex acute or acuminate. Panicle leaf-opposed, 2–4.5 cm, narrow, basal branches well developed; peduncle 1–1.5 cm, pubescent or subglabrate. Pedicel 2–3 mm, glabrous. Buds ovoid-elliptic, 1.5–2 mm, apex rounded. Calyx subtire. Filaments filiform, 1.3–1.5 mm; anthers yellow, elliptic, ca. 0.4 mm. Pistil abortive in male flowers. Fl. May.

• Forests, forest margins, hillsides; 300–1200 m. W Hubei, S Shaanxi.

16. *Vitis wuhanensis* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 243. 1996.

武汉葡萄 wu han pu tao

Vitis wuhanensis var. *arachnoidea* X. D. Wang & C. L. Li.

Plants polygamo-dioecious. Branchlets terete, slender, with longitudinal ridges, with sparse arachnoid tomentum; tendrils bifurcate, leaf-opposed. Leaves simple; stipules brownish, elliptic-lanceolate, 2.5–3.5 × 1–1.5 mm, membranous, glabrous, entire, apex obtuse or acute; petiole 1.5–4 cm, with arachnoid tomentum when young, then glabrate; leaf blade ovate or oval, 3-lobed or inconspicuously 3–5-divided, 3–7 × 2.5–6 cm, abaxially white with sparse arachnoid tomentum when young, then glabrate, adaxially glabrous, basal veins 5, lateral veins 4 or 5 pairs, veinlets conspicuous at fruiting stage, base cordate, margin 5–13-toothed on each side, teeth obtuse, apex acute or acuminate. Panicle leaf-opposed, 2.5–4 cm, narrow, basal branches undeveloped; peduncle 1.5–2.5 cm, with sparse arachnoid tomentum. Pedicel 2–3 mm, glabrous. Buds obovoid-elliptic, 1.5–2.5 mm, apex rounded. Calyx ca. 2 mm, subtire. Filaments filiform, 1.2–1.8 mm; anthers yellow, elliptic, ca. 0.5 mm. Pistil abortive in male flowers. Berry globose, 6–7 mm in diam. Seeds obovoid, apex retuse, chalazal knot elliptic, ventral holes furrowed from base upward nearly to apex. Fl. Apr–May, fr. May–Jul.

• Forests, shrublands in valleys, hillsides; 300–700 m. Henan (Xinyang), Hubei, Jiangxi.

17. *Vitis wenchowensis* C. Ling ex W. T. Wang, Acta Phytotax. Sin. 17(3): 74. 1979.

温州葡萄 wen zhou pu tao

Branchlets slender, with longitudinal ridges, glabrous; tendrils unbranched. Leaves simple; stipules caducous; petiole 1.8–3.2 cm, glabrous; leaf blade halberd-shaped or triangular-ovate, undivided or 3–5-lobed, divided leaves with obtuse or acute notch, 4–9.3 × 2.8–4.5 cm, abaxially glabrous, adaxially very shortly strigose on veins, basal veins 5, lateral veins 4 or 5 pairs, veinlets conspicuously raised, base cordate, margin irregularly 7–9-toothed on each side and shortly ciliate, apex long acuminate. Panicles leaf-opposed, 3.8–6 cm; peduncle and pedicels glabrous. Berry globose, 5–8 mm in diam. Seeds obelliptic, chalazal knot elliptic. Fr. Jun–Jul.

• Broad-leaved evergreen forests by streams in valleys. Zhejiang.

18. *Vitis jinggangensis* W. T. Wang, Bull. Bot. Res., Harbin 1(1-2): 167. 1981.

井冈葡萄 jing gang pu tao

Branchlets terete, with longitudinal ridges, densely pubescent; tendrils unbranched, leaf-opposed. Leaves simple; stipules caducous; petiole 3–4 cm, sparsely pubescent; leaf blade oval or ovate-elliptic, usually 3-lobed, rarely 3–5-cleft, 7–9 × 6–7 cm, adaxially pubescent on veins at lower part, basal veins 5, lateral veins 3 or 4 pairs, veinlets conspicuously raised abaxially, inconspicuous adaxially, base slightly cordate or subtruncate, lobes with base cordate, notch obtuse or acute, rarely rounded, margin undulately 8–12-toothed on each side, apex acuminate or mucronulate. Panicle leaf-opposed, subcylindric, 4–4.5 cm, narrow, basal branches well developed; peduncle 2–2.7 cm, pubescent. Pedicel 2–2.5 mm, glabrous. Buds obovoid, 1.8–2 mm, apex rounded. Calyx ca. 1.5 mm, subtire. Filaments filiform. Disk well developed, slightly 5-lobed. Pistil abortive in male flowers. Fl. Apr.

• Shrublands on hillsides; ca. 1000 m. Hunan (Yongshun), Jiangxi.

19. *Vitis erythrophylla* W. T. Wang, Bull. Bot. Res., Harbin 1(1-2): 168. 1981.

红叶葡萄 hong ye pu tao

Plants polygamo-dioecious. Branchlets terete, slender, with longitudinal ridges, sparsely pubescent when young, then subglabrate; tendrils unbranched, leaf-opposed. Leaves simple, 3–5-lobed to -cleft; stipules brownish, lanceolate, 2–3 × 1–1.5 mm, pubescent, entire, apex obtuse; petiole 4–6 cm, pubescent; leaf blade abaxially purplish, adaxially purplish when young, becoming purplish green when old, ovate or ovate-lanceolate, 7–12 × 5–7 cm, abaxially pubescent on veins, adaxially pubescent on veins, basal veins 5, lateral veins 5 or 6 pairs, veinlets usually raised, base cordate, notch obtuse, rarely acute, base of midlobes broad, rarely constricted, margin irregularly 12–16-toothed on each side, teeth sharp, apex acute or acuminate. Panicle leaf-opposed, 6–8 cm, basal branches poorly developed; peduncle 1–2 cm, pubescent. Pedicel 2–3 mm, subglabrate. Buds obovoid, 1.5–2 cm, apex rounded. Calyx ca. 2 mm, entire. Filaments filiform, ca. 0.8 mm; anthers yellow, elliptic, ca. 0.4 mm. Fl. Apr–May.

• Forests, shrublands, hillsides, grasslands, field margins; ca. 1000 m. Jiangxi, Zhejiang.

20. *Vitis ruyuanensis* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 244. 1996.

乳源葡萄 ru yuan pu tao

Plants polygamo-dioecious. Branchlets terete, slender, with inconspicuous longitudinal ridges, glabrous; tendrils unbranched. Leaves simple, undivided or 3–5-lobed; stipules caducous; petiole 1.5–2 cm, glabrous; leaf blade abaxially purplish, sagittate or ovate-hastate, 5–8 × 3–4 cm, abaxially pubescent on veins, adaxially glabrous or with sparse very short hairs, basal veins 5, lateral veins 5 or 6 pairs, veinlets conspicuous but not raised, base cordate, notch acute or obtuse, margin irregularly finely 7–10-toothed on each side, apex acuminate. Panicle

leaf-opposed, 7–9 cm, basal branches undeveloped; peduncle 1.5–2 cm, subglabrate. Pedicel 2–3 mm, subglabrate. Buds obovoid, 1.5–2 mm, apex rounded. Calyx ca. 2 mm, entire. Filaments filiform, ca. 1 mm; anthers yellow, elliptic, ca. 0.5 mm. Ovary conical; style slender. Berry globose, 6–8 mm in diam. Seeds obovoid, base rostrate, apex retuse, chalazal knot rounded, ventral holes furrowed from base nearly to apex. Fl. Apr–May, fr. Jun–Jul.

• Shrublands on hillsides; ca. 200 m. Guangdong.

21. *Vitis mengziensis* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 245. 1996.

蒙自葡萄 meng zi pu tao

Branchlets terete, glabrous, glaucous; tendrils unbranched. Leaves simple; stipules caducous; petiole 4.5–10 cm, glabrous; leaf blade oval, 11–13 × 7–11 cm, glabrous, basal veins 6 or 7, lateral veins 5 or 6 pairs, veinlets slightly raised abaxially, base deeply cordate, notch narrow to acute, two sides close together, margin irregularly 31–39-toothed on each side, apex mucronulate. Panicle leaf-opposed, ca. 12 cm; peduncle subglabrate. Pedicel 2–2.5 mm, glabrous. Buds obovoid, 2–2.5 mm. Calyx glabrous, margin undulate. Petals oblong, 1.5–2 mm. Filaments filiform, slightly flat, 1–1.5 mm; anthers yellow, oblong, ca. 0.8 mm. Ovary conical; style short.

• Forests; ca. 1600 m. Yunnan.

22. *Vitis fengqinensis* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 245. 1996.

凤庆葡萄 feng qing pu tao

Branchlets terete, with sparse, white arachnoid tomentum. Leaves simple; stipules brownish, oblong, 2–2.5 × 1.8–2 mm, membranous, with sparse white tomentum, apex acuminate; petiole 2–6 cm, with sparse, white arachnoid tomentum; leaf blade oval or ovate-elliptic, 4–9.5 × 3.5–7 cm, with sparse, white arachnoid tomentum on veins, basal veins 5, lateral veins 4 or 5 pairs, veinlets raised, base cordate or subcordate, notch obtuse, margin irregularly 17–29(–32)-toothed on each side, apex acuminate or mucronulate. Panicle sparse, basal branches well developed, axis sparsely lanate and pubescent; peduncle 2–6 cm, with sparse, white arachnoid tomentum. Pedicel 2–3 mm, glabrous. Buds obovoid, 1.8–2 mm, apex rounded. Calyx shallow and saucer-shaped, margin undulate. Filaments filiform, 1.3–1.5 mm; anthers yellow, oblong. Pistil entirely abortive in male flowers. Fr. Jun.

• Shrublands on hillsides; ca. 2000 m. Yunnan.

23. *Vitis hancockii* Hance, J. Bot. 20: 4. 1882.

菱叶葡萄 ling ye pu tao

Vitis fagifolia Hu; *V. wentsaiana* P. L. Chiu.

Plants polygamo-dioecious. Branchlets terete, with longitudinal ridges, densely brown villous; tendrils bifurcate or unbranched, sparsely brown pilose. Leaves simple, undivided, rarely 3-lobed; stipules brown, triangular-lanceolate, 2–4 × 1–1.5 mm, membranous, glabrous or base sparsely ciliate, margin entire, apex acuminate; petiole 0.2–3 cm, brown villous; leaf

blade rhombic-ovate or elliptic, 3.5–13 × 2–7 cm, abaxially sparsely brownish pilose, adaxially sparsely pubescent only on midvein, basal veins 3, lateral veins 3–5 pairs, veinlets slightly raised abaxially, inconspicuous adaxially, base usually asymmetric, truncate or broadly so, base of lower leaves rarely subrounded, margin 6–12-toothed on each side, teeth large and sharp, rarely obtuse, apex acute. Panicle leaf-opposed, loose, 2.5–5.5 cm, basal branches undeveloped; peduncle 1–2 cm, densely brownish villous. Pedicel 1.5–2 mm, glabrous. Buds oval, 1.2–1.5 mm, apex rounded. Calyx 0.1–0.2 mm, glabrous, entire. Filaments filiform, 0.5–1 mm; anthers yellow, oval or ovate-elliptic, 0.5–0.6 mm. Ovary rounded; style short; stigma expanded. Berry globose, 6–8 mm in diam. Seeds obovoid, apex retuse, chalazal knot elliptic, ventral holes elliptic and broad, furrowed upward 1/4 from base. Fl. Apr–May, fr. May–Jun.

• Forests, shrublands, hillsides; 100–600 m. Anhui, Fujian, Jiangxi, Zhejiang.

24. *Vitis tsoi* Merrill, Lingnan Sci. J. 11: 101. 1932 [*“tsoii”*].

狭叶葡萄 xia ye pu tao

Vitis embergeri Galet.

Branchlets terete, with longitudinal ridges, densely pubescent; tendrils unbranched. Leaves simple; stipules brown, lanceolate, 1–2 × 0.3–0.5 mm, membranous, glabrous; petiole 1–2 cm, densely pubescent; leaf blade ovate-lanceolate or triangular-ovate, 3.5–9 × 1.5–4 cm, abaxially pubescent on veins, adaxially sparsely pubescent on veins, basal veins 5, outermost pair of veins usually on a line, lateral veins 5 or 6 pairs, base subtruncate or rounded, margin 10–15-toothed on each side, teeth sharp and fine, apex acute. Panicle leaf-opposed, 2–6 cm, narrow, basal branches undeveloped. Pedicel 1.5–2.5 mm, subglabrate. Buds obelliptic, ca. 1.5 mm, apex rounded. Calyx subentire. Filaments filiform, ca. 0.8 mm; anthers yellow, elliptic, ca. 0.5 mm. Ovary conical; style short. Berry purple-black at maturity, globose, 5–8 mm in diam. Seeds obelliptic, apex rounded, chalazal knot elliptic, ventral holes obelliptic and broad, furrowed upward from base to apex. Fl. Apr–May, fr. Jun–Sep.

• Forests, shrublands, hillsides; 300–700 m. Fujian, Guangdong, Guangxi.

25. *Vitis flexuosa* Thunberg, Trans. Linn. Soc. London 2: 332. 1794.

葛藟葡萄 ge lei pu tao

Vitis cavaleriesi H. Léveillé & Vaniot; *V. flexuosa* var. *chinensis* Veitch; *V. flexuosa* f. *parvifolia* (Roxburgh) Planchon; *V. flexuosa* var. *parvifolia* (Roxburgh) Gagnepain; *V. flexuosa* var. *wallichii* (Candolle) F. S. Wang; *V. parvifolia* Roxburgh; *V. purani* Buchanan-Hamilton ex D. Don; *V. vulpina* Linnaeus var. *parvifolia* (Roxburgh) Regel; *V. wallichii* Candolle.

Branchlets terete, with longitudinal ridges, with sparse arachnoid tomentum when young, becoming glabrescent; tendrils bifurcate. Leaves simple; stipules caducous; petiole 1.5–7 cm, with sparse arachnoid tomentum or subglabrate; leaf blade

ovate, triangular-ovate, oval, or ovate-elliptic, 2.5–12 × 2.3–10 cm, abaxially with sparse arachnoid tomentum when young, eventually glabrescent, basal veins 5, lateral veins 4 or 5 pairs, veinlets inconspicuous, base slightly subcordate or subtruncate, rarely cordate, often asymmetrical, leaves with cordate bases with obtusely angled notch, margin with 5–12 slightly irregular teeth on each side, apex acute or acuminate. Panicle leaf-opposed, loose, 4–12 cm, basal branches well developed, or short and slender; peduncle 2–5 cm, with sparse arachnoid tomentum or nearly glabrescent. Pedicel 1.1–2.5 mm, glabrous. Buds obovoid, 2–3 mm, apex rounded and subtruncate. Calyx glabrous, undulately lobed. Filaments filiform, 0.7–1.3 mm; anthers yellow, oval, 0.4–0.6 mm. Pistil abortive in male flowers; ovary oval; style short. Berry globose, 8–10 mm in diam. Seeds obovoid, apex subrounded, chalazal knot elliptic, raphe slightly raised and surface smooth, ventral holes furrowed upward 1/4 from base. Fl. Mar–May, fr. Jul–Nov. *2n* = 38.

Forests, shrublands, hillsides, valleys, meadows, fields; 100–2300. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [India, Japan, Laos, Nepal, Philippines, Thailand, Vietnam].

26. *Vitis amurensis* Ruprecht, Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg 15: 266. 1857.

山葡萄 shan pu tao

Branchlets terete, glabrous, with sparse arachnoid tomentum when young; tendrils 2- or 3-branched. Leaves simple; stipules brown, 4–8 × 3–5 mm, membranous, entire, apex obtuse; petiole 4–14 cm, with sparse arachnoid tomentum when young, eventually glabrate; leaf blade broadly oval, 6–24 × 5–21 cm, adaxially with sparse arachnoid tomentum when young, then glabrescent, basal veins 5, lateral veins 5 or 6 pairs, veins raised abaxially, conspicuous or slightly impressed adaxially, abaxial veinlets conspicuous, ± raised, usually pubescent or glabrescent, base cordate, notch rounded to obtuse, base of lobes usually constricted or mixed with broad ones, notch rounded, rarely acute or obtuse, margin 28–36-toothed on each side, teeth sharp, slightly irregular, apex acute or acuminate. Panicle leaf-opposed, loose, 5–13 cm, basal branches well developed, with sparse arachnoid tomentum when young, eventually glabrescent. Pedicel 2–6 mm, glabrous. Buds obovoid, 1.5–3 mm, apex rounded. Calyx 0.2–0.3 mm, glabrous, subentire. Petals calyprate. Filaments filiform, 0.9–2 mm; anthers yellow, ovoid-elliptic, 0.4–0.6 mm, conspicuously short and abortive in female flowers. Disk 0.3–0.5 mm. Ovary conical; style obvious, slightly thick at base. Seeds obovoid, apex retuse, chalazal knot elliptic, ventral holes furrowed upward to middle or near apex from base. Fl. May–Jun, fr. Jul–Sep.

• Forests, shrublands, hillsides, valleys; 100–2100 m. Anhui, Hebei, Heilongjiang, Jilin, Liaoning, Shandong, Shanxi, Zhejiang.

Vitis amurensis var. *funiushanensis* F. S. Wang (J. Trop. Subtrop. Bot. 8: 5. 2000), described from Henan, could not be treated here because no material was seen by the authors.

1a. Berry 1–1.5 cm in diam. 26a. var. *amurensis*
1b. Berry 0.8–1 cm in diam. 26b. var. *dissecta*

26a. *Vitis amurensis* var. *amurensis*

山葡萄(原变种) shan pu tao (yuan bian zhong)

Vitis vinifera Linnaeus var. *amurensis* (Ruprecht) Regel.

Leaves 3(or 5)-lobed or cleft, or undivided. Berry 1–1.5 cm in diam. Fl. May–Jun, fr. Jul–Sep. $2n = 38^*$.

• Forests or shrublands in valleys, hillsides; 200–2100 m. Anhui (Jinzhai), Hebei, Heilongjiang, Jilin, Liaoning, Shandong, Shanxi, Zhejiang.

26b. *Vitis amurensis* var. *dissecta* Skvortsov, Chin. J. Sci. Arts. 15: 200. 1931.

深裂山葡萄 shen lie shan pu tao

Vitis amurensis var. *yanshanensis* D. Z. Lu & H. P. Liang; *V. baihuashanensis* M. S. Kang & D. Z. Lu.

Leaves 3–5-parted. Berry 0.8–1 cm in diam. Fl. May–Jun, fr. Jul–Sep.

• 100–200 m. Hebei, Heilongjiang, Jilin, Liaoning.

27. *Vitis vinifera* Linnaeus, Sp. Pl. 1: 202. 1753.

葡萄 pu tao

Branchlets terete, with longitudinal ridges, glabrous or sparsely pilose; tendrils bifurcate. Leaves simple, conspicuously 3–5-lobed or cleft; stipules caducous; petiole 4–9 cm, nearly glabrous; leaf blade oval, 7–18 × 6–16 cm, basal veins 5, lateral veins 4 or 5 pairs, veinlets inconspicuously raised, base deeply cordate, notch rounded, 2 sides usually overlapping to nearly so, margin 22–27-toothed on each side, teeth large, irregular, and sharp, glabrous or sparsely pilose, apex of midlobes acute. Panicle sparse or dense, opposite to leaves, basal branches well developed, 10–20 cm; peduncle 2–4 cm, glabrous or with sparse arachnoid tomentum. Pedicel 1.5–2.5 mm, glabrous. Buds obovoid, 2–3 mm, apex rounded. Calyx glabrous, undulate. Filaments filiform, 0.6–1 mm; anthers yellow, oval, 0.4–0.8 mm. Pistil entirely abortive in male flowers; ovary oval; style short; stigma expanded. Berry globose or elliptic, 1.5–2 cm in diam. Seeds obovoid to obelliptic, apex subrounded, chalazal knot elliptic, raphe slightly raised, ventral holes broadly furrowed upward ca. 1/4 from base. Fl. Apr–May, fr. Aug–Sep. $2n = 38^*$.

Cultivated throughout China for grapes and wine-making [native to SW Asia and SE Europe].

28. *Vitis heyneana* Roemer & Schultes, Syst. Veg. 5: 318. 1819.

毛葡萄 mao pu tao

Plants polygamo-dioecious. Branchlets terete, with longitudinal ridges, gray or brown lanate; tendrils bifurcate. Leaves simple; stipules brown, ovate-lanceolate, 3–5 × 2–3 mm, membranous, entire, apex acuminate, rarely obtuse; petiole 2.5–6 cm, with dense arachnoid tomentum; leaf blade sometimes 3-lobed to -cleft, 4–12 × 3–8 cm, abaxially densely grayish or brown tomentose, gradually becoming less so, abaxial veins tomentose, sometimes pilose or lanate, adaxially with sparse

arachnoid tomentum when young, then glabrate, adaxial veins glabrous or sometimes sparsely pubescent, basal veins 3–5, lateral veins 4–6 pairs, base cordate to subcordate, notch obtuse, rarely acute, margin 9–19-toothed on each side, teeth sharp, apex acute or acuminate. Panicle leaf-opposed, 4–14 cm, basal branches developed; peduncle 1–2 cm, with gray or brown arachnoid tomentum. Pedicel 1–3 mm, glabrous. Buds obovoid or elliptic, 1.5–2 mm, apex rounded. Calyx ca. 0.1 mm, subentire. Filaments filiform, 1–1.2 mm; anthers yellow, elliptic or broadly so, ca. 0.5 mm. Ovary oval; style short. Berry purple-black at maturity, globose, 1–1.3 cm in diam. Seeds obovoid, apex rounded, chalazal knot rounded, ventral holes furrowed upward ca. 1/4 from base. Fl. Apr–Jul, fr. Jun–Oct.

Forests, shrublands, hillsides, valleys; 100–3200 m. Anhui, Chongqing, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Xizang, Yunnan, Zhejiang [Bhutan, India, Nepal].

- 1a. Leaves oval, ovate-oblong, or ovate-quinquangular 28a. subsp. *heyneana*
1b. Leaves usually 3-lobed to cleft 28b. subsp. *ficifolia*

28a. *Vitis heyneana* subsp. *heyneana*

毛葡萄(原亚种) mao pu tao (yuan ya zhong)

Vitis ficifolia Bunge var. *pentagona* Pampanini; *V. kelungensis* Momiyama; *V. lanata* Roxburgh; *V. pentagona* Diels & Gilg; *V. pentagona* var. *honanensis* Rehder; *V. quinquangularis* Rehder; *V. thunbergii* Siebold & Zuccarini var. *yunnanensis* Planchon.

Leaves oval, ovate-oblong, or ovate-quinquangular. Fl. Apr–Jun, fr. Jun–Oct.

Forests, shrublands, hillsides, valleys; 100–3200 m. Anhui, Chongqing, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Xizang, Yunnan, Zhejiang [Bhutan, India, Nepal].

28b. *Vitis heyneana* subsp. *ficifolia* (Bunge) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 250. 1996.

桑叶葡萄 sang ye pu tao

Vitis ficifolia Bunge, Enum. Pl. China Bor. 12. 1833; *V. labrusca* Linnaeus var. *ficifolia* (Bunge) Regel.

Leaves usually 3-lobed to cleft, and mixed with undivided ones. Fl. May–Jul, fr. Jul–Sep. $2n = 38^*$.

• Forests, shrublands, hillsides; 100–1300 m. Hebei, Henan, Jiangsu, Shaanxi, Shandong, Shanxi.

29. *Vitis rotundifolia* Romanet du Caillaud ex Planchon in A. Candolle & C. Candolle, Monogr. Phan. 5: 613. 1887.

绵毛葡萄 mian mao pu tao

Vitis hekouensis C. L. Li.

Plants polygamo-dioecious. Branchlets terete, with longitudinal ridges, densely brownish villous when young, eventually glabrescent; tendrils bifurcate. Leaves simple; stipules brown, ovate-lanceolate, 3–5 × 2–3 mm, membranous, subglabrate, apex acuminate, caducous; petiole 1.5–9 cm, densely

pubescent with brown and arachnoid hairs; leaf blade oval or ovate-elliptic, 6–15 × 4–11 cm, abaxially tomentose with brown and villous hairs, adaxially densely pubescent, basal veins 5, lateral veins 4 or 5 pairs, veinlets tomentose and raised abaxially, raised and pubescent adaxially, base deeply cordate, notch with an acute angle, rarely overlapping, margin 19–43-toothed on each side, teeth sharp. Panicle leaf-opposed, loose, 6–10 cm, basal branches well developed; peduncle 1.2–2.5 cm, usually brown tomentose. Pedicel 1–1.5 mm, glabrous. Buds obelliptic, 1.2–1.5 mm, apex rounded. Calyx cupular, ca. 1.5 mm, glabrous, subentire. Filaments filiform, 1–1.2 mm; anthers yellow, oblong, ca. 0.5 mm. Ovary oval; style short. Berry globose, ca. 8 mm in diam. Seeds obelliptic, apex rounded, chalazal knot ovate-elliptic, ventral holes furrowed upward ca. 1/3 from base. Fl. May, fr. Jun–Jul.

Forests in valleys, shrublands, hillsides; 200–1000. Guangdong, Guangxi, Guizhou, Hainan [Laos, Vietnam].

30. *Vitis menghaiensis* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 250. 1996.

勐海葡萄 meng hai pu tao

Branchlets terete, densely ferruginous pilose. Leaves simple; stipules brown, ovate-elliptic, 4–6 × 2–3 mm, membranous, apex obtuse; petiole 3–5.5 cm, densely ferruginous pilose; leaf blade suborbicular or quinquangularly orbicular, 9–11 × 8–10 cm, abaxially with dense rubiginous arachnoid tomentum, adaxially densely pubescent, basal veins 5–7, lateral veins 5 or 6 pairs, veins densely pubescent with spreading hairs, base deeply cordate, notch narrow, 2 sides close together or overlapping, margin 28–47-toothed on each side, teeth fine and sharp, apex acute or rounded, rarely retuse. Panicle loose, ca. 12 cm, basal branches undeveloped; peduncle ca. 2.5 cm, densely ferruginous pilose. Pedicel 1–2 mm, subglabrate. Buds obovoid, 1.5–2 mm, apex rounded. Calyx ca. 0.2 mm, undulate. Filaments filiform, slightly flat, 1–1.2 mm; anthers yellow, ovoid-oblong. Ovary abortive in male flowers. Fl. May.

• Mixed forests; 1500–1600 m. Yunnan.

31. *Vitis longquanensis* P. L. Chiu, Bull. Bot. Res., Harbin 10(3): 41. 1990.

龙泉葡萄 long quan pu tao

Branchlets terete, with longitudinal ridges, white lanate when young, then glabrescent. Leaves of two types, those of upper branches sometimes 3–5-divided, notch rounded, most leaves of lower branches undivided, simple; stipules caducous; petiole 2–5.5 cm, densely light brown lanate; leaf blade adaxially greenish, oval, triangular-ovate, or triangular-lanceolate, 4–12 × 4–10 cm, abaxially densely light brown lanate, rarely hairs falling off and only veins tomentose, adaxially with sparse arachnoid tomentum when young, then glabrate, basal veins 5, outermost pair of veins on a line and bifurcate at 5–9 mm from base, lateral veins 3 or 4 pairs, veinlets tomentose and raised abaxially, conspicuously raised adaxially, base subcordate or subtruncate, notch very short, two sides nearly overlapping, margin with fine teeth, apex acute or acuminate. Panicle leaf-opposed, loose, basal branches well developed; peduncle 3–9 cm, with sparse arachnoid tomentum. Pedicel 1–4 mm, gla-

brous. Berry purple-black and glaucous at maturity, globose, 5–6 mm in diam. Seeds obovoid, apex retuse, chalazal knot rounded, ventral holes narrow and oblong. Fr. Jul–Sep.

• Forests and shrublands in valleys, roadsides; 700–1300 m. Fujian, Jiangxi, Zhejiang.

32. *Vitis bellula* (Rehder) W. T. Wang, Acta Phytotax. Sin. 17(3): 74. 1979.

美丽葡萄 mei li pu tao

Branchlets terete, slender, with longitudinal ridges, sparsely white lanate; tendrils unbranched or mixed with bifurcate ones. Leaves simple; stipules green-brown, ca. 0.8 × 0.7 mm, submembranous, glabrous, apex obtuse; petiole 1–3 cm, with sparse arachnoid tomentum; leaf blade 3–7 × 2–4 cm, abaxially with dense gray-white or gray-brown arachnoid tomentum, adaxially subglabrate, basal veins 3, lateral veins 4 or 5 pairs, veinlets tomentose and raised abaxially, not raised adaxially, base subcordate, subtruncate, or subrounded, notch very short, margin 7–10-toothed on each side, teeth fine and sharp, apex acute or acuminate. Panicle leaf-opposed, terete, basal branches undeveloped; peduncle 0.5–1.2 cm. Pedicels 2–3 mm, slender, glabrous. Buds elliptic or obelliptic, 1.5–1.8 mm, apex rounded. Calyx glabrous, teeth inconspicuous. Petals ovate-elliptic, 1.2–1.6 mm. Filaments filiform, ca. 1.2 mm; anthers yellow, oblong, ca. 0.5 mm. Disk well developed and pistil entirely abortive in male flowers. Berry purple-black and glaucous at maturity, globose, 6–10 mm in diam. Seeds obovoid, apex rounded and retuse, chalazal knot rounded, ventral holes furrowed from base upward nearly to tip. Fl. May–Jun, fr. Jun–Aug.

• Forests, shrublands, hillsides, cliffs; 400–1600 m. Guangdong, Guangxi, Hubei, Hunan, Sichuan.

1a. Leaves oval or ovate-elliptic 32a. var. *bellula*
1b. Leaves mostly ovate-triangular 32b. var. *pubigera*

32a. *Vitis bellula* var. *bellula*

美丽葡萄(原变种) mei li pu tao (yuan bian zhong)

Vitis pentagona Diels & Gilg var. *bellula* Rehder in Sargent, Pl. Wilson. 3: 428. 1917; *V. quinquangularis* Rehder var. *bellula* (Rehder) Rehder.

Leaves oval or ovate-elliptic. Peduncle with sparse arachnoid tomentum. Fl. May–Jun, fr. Jul–Aug.

• Forests, shrublands, hillsides; 1300–1600 m. Hubei, Sichuan.

32b. *Vitis bellula* var. *pubigera* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 251. 1996.

华南美丽葡萄 hua nan mei li pu tao

Leaves mostly ovate-triangular. Inflorescence axis pilose. Fl. May, fr. Jun–Aug.

• Forests, shrublands, cliffs; 400–1500 m. Guangdong, Guangxi, Hunan.

33. *Vitis bashanica* P. C. He, Acta Univ. Agric. Bor.-Occid. 23(5): 121. 1995.

麦黄葡萄 mai huang pu tao

Branchlets terete, slender, with longitudinal ridges, pilose and lanate with white hairs; tendrils unbranched or bifurcate. Leaves simple; stipules caducous; petiole 1.6–3 cm, pilose and lanate; leaf blade oval or ovate-elliptic, 5.5–6.9 × 3.6–4.8 cm, abaxially densely gray-white tomentose, adaxially sparsely pubescent on veins, basal veins 5, lateral veins 3 or 4 pairs, veinlets inconspicuously raised, base truncate, margin 7–12-toothed on each side, teeth fine and sharp, apex acuminate. Panicle ca. 3.6 cm; peduncle ca. 1.2 cm. Berry purple-black and glaucous at maturity, globose, ca. 7 mm in diam. Fr. Aug.

- About 300 m. Shaanxi (Baiheyinfang).

34. *Vitis hui* W. C. Cheng, Contr. Biol. Lab. Sci. Soc. China, Bot. Ser. 10: 77. 1935.

庐山葡萄 lu shan pu tao

Plants polygamo-dioecious. Branchlets terete, with longitudinal ridges, densely pubescent and sparsely lanate; tendrils unbranched or mixed with bifurcate ones. Leaves simple; stipules ovate-elliptic, 2–3 × 1.5–2 mm, subglabrate, subentire, apex obtuse; petiole 5–10 mm, densely pubescent and lanate; leaf blade oval or ovate-elliptic, 3–5.5 × 2–4 cm, abaxially densely lanate with gray hairs and pubescent with short hairs, adaxially densely pubescent and sparsely lanate, basal veins 5, lateral veins 4 or 5 pairs, veins densely pubescent and with sparse arachnoid tomentum, veinlets densely tomentose and pubescent abaxially, inconspicuous adaxially, base cordate, notch acute, margin with sharp teeth, apex acute or acuminate. Panicle leaf-opposed, 2–8.5 cm, basal branches short; peduncle 0.5–1.5 cm, densely pubescent. Pedicels 1–1.5 mm, densely pubescent. Buds obovoid, 1.5–2 mm, apex rounded. Calyx ca. 0.2 mm, glabrous, 5-lobed. Filaments filiform, 1–1.2 mm; anthers yellow, oblong, ca. 0.5 mm. Ovary abortive in male flowers. Fl. May, fr. Jul.

- Shrublands, fields; 100–200 m. Jiangxi, Zhejiang.

35. *Vitis sinocinerea* W. T. Wang, Acta Phytotax. Sin. 17(3): 75. 1979.

小叶葡萄 xiao ye pu tao

Vitis thunbergii Siebold & Zuccarini var. *cinerea* Gagnepain; *V. thunbergii* var. *taiwaniana* F. Y. Lu.

Branchlets terete, with longitudinal ridges, sparsely pubescent with arachnoid tomentum; tendrils unbranched or bifurcate. Leaves simple, 3-lobed or inconspicuously divided; stipules brownish, ovate-lanceolate, ca. 2 × 1 mm, membranous, subglabrate, apex obtuse or acuminate; petiole 1–3 cm, densely pubescent; leaf blade oval, 3–8 × 3–6 cm, abaxially with dense brown and arachnoid tomentum, adaxially densely pubescent or glabrescent, basal veins 5, lateral veins 3 or 4 pairs, veins densely pubescent and sparsely lanate, base subcordate or subtruncate, margin 5–9-toothed on each side, apex acute. Panicle leaf-opposed, small, 3–6 cm, slender, basal branches undeveloped; peduncle 1.5–2 cm, densely pubescent. Pedicels 1.5–2 mm, subglabrate. Buds obovoid-elliptic, 1.5–2 mm, apex rounded. Calyx cupular, glabrous, subentire. Petals calyprate. Filaments filiform, ca. 1 mm; anthers yellow, oblong, ca. 0.5 mm. Pistil abortive in male flowers. Berry purple-black at maturity, 6–10 mm in diam. Seeds obovoid, apex retuse, chalazal

knot elliptic, ventral holes furrowed upward 1/4–1/3 from base. Fl. May–Jun, fr. Jul–Oct.

- Forests, shrublands, hillsides; 200–2800 m. Fujian, Hubei, Hunan, Jiangsu, Jiangxi, Taiwan, Yunnan, Zhejiang.

36. *Vitis bryoniifolia* Bunge, Enum. Pl. China Bor. 11. 1833 [*“bryoniaefolia”*].

蓼蓼 ying yu

Plants polygamo-dioecious. Branchlets terete, with longitudinal ridges, densely lanate when young, becoming sparsely so; tendrils bifurcate. Leaves simple; stipules brownish, oval or ovate-lanceolate, 3.5–8 × 2.5–4 mm, membranous, glabrous or subglabrate, entire, apex obtuse; petiole 0.5–4.5 cm, densely lanate, pubescent, or tomentose, becoming sparsely so; leaf blade ovate, 2.5–8 × 2–5 cm, basal veins 5, lateral veins 4–6 pairs, veinlets inconspicuous or slightly raised adaxially, base cordate or deeply so, notch rounded, margin with 9–16 obtuse teeth on each side or pinnatifidly divided. Panicle leaf-opposed, basal branches well developed or sometimes reduced to tendrils, rarely narrow and branches undeveloped; peduncle 0.5–2.5 cm, with arachnoid tomentum when young, becoming sparsely so. Pedicels 1.5–3 mm, glabrous. Buds obelliptic or globose, 1.5–2.2 mm, apex rounded. Calyx ca. 0.2 mm, glabrous, subentire. Filaments filiform, 1.5–1.8 mm; anthers yellow, oblong, 0.4–0.5 mm. Ovary elliptic-ovoid; style short, slender; stigma expanded. Berry purple-red at maturity, 5–8 mm in diam. Seeds obovoid, apex retuse, chalazal knot rounded or elliptic, ventral holes narrow, furrowed upward ca. 3/4 from base. Fl. Apr–Aug, fr. Jun–Oct.

- Forests in valleys, shrublands, streamsides, fields; 100–2500 m. Anhui, Fujian, Guangdong, Guangxi, Hebei, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Yunnan, Zhejiang.

- 1a. Leaves simple, 3–5(–7)-parted or lobed, rarely mixed with undivided ones 36a. var. *bryoniifolia*
- 1b. Leaves 3-foliolate or 3–5-parted 36b. var. *ternata*

36a. *Vitis bryoniifolia* var. *bryoniifolia*

蓼蓼(原变种) ying yu (yuan bian zhong)

Vitis adstricta Hance; *V. bryoniifolia* var. *mairei* (H. Léveillé) W. T. Wang; *V. bryoniifolia* var. *multilobata* S. Y. Wang & Y. H. Hu; *V. flexuosa* Thunberg var. *mairei* H. Léveillé; *V. novisinesis* Vassilczenko; *V. thunbergii* Siebold & Zuccarini var. *adstricta* (Hance) Gagnepain; *V. thunbergii* var. *mairei* (H. Léveillé) Lauener.

Leaves simple, 3–5(–7)-parted or lobed, rarely mixed with undivided ones; leaf blade abaxially with dense arachnoid tomentum and short hairs, then becoming sparsely so, rarely mostly pubescent with short hairs and only sparsely lanate, base constricted to rounded, apex of midlobes acute or acuminate.

- Forests in valleys, shrublands, streamsides, fields; 100–2500 m. Anhui, Fujian, Guangdong, Guangxi, Hebei, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Yunnan.

36b. *Vitis bryoniifolia* var. *ternata* (W. T. Wang) C. L. Li, Chin. J. Appl. Environ. Biol. 2: 253. 1996.

三出蓼蓼 san chu ying yu

Vitis adstricta var. *ternata* W. T. Wang, Acta Phytotax. Sin. 17(3): 76. 1979.

Leaves 3-foliolate or 3–5-parted; leaf blade abaxially sparsely lanate.

- Zhejiang.

37. *Vitis lanceolatifolia* C. L. Li, Chin. J. Appl. Environ. Biol. 2: 253. 1996 [*“laceolatifolia”* & *“lanceolatifolia”*].

鸡足葡萄 jī zú pú táo

Vitis piasezkii Maximowicz var. *angusta* W. T. Wang.

Branchlets terete, with longitudinal ridges, densely rubiginous lanate; tendrils bifurcate. Leaves palmate, 3–5-foliolate; stipules brownish, elliptic, 1.8–2.5 × 1–1.3 mm, membranous, glabrous or subglabrate, entire, apex acute; petiole 3–5 cm, with dense brown and arachnoid tomentum; leaflets abaxially with

dense brown arachnoid tomentum, adaxially with sparse arachnoid tomentum when young, then glabrate, only midvein pilose with very short hairs, lateral veins 3–5 pairs, veinlets inconspicuous; central leaflet lanceolate, rarely oblong or obovate-lanceolate, 3.5–9 × 1.5–2.5 cm, base truncate, margin with 5 or 6 sharp teeth on each side, apex acuminate; lateral leaflets ovate-lanceolate, 3–8 × 1.2–3 cm, base asymmetric, obliquely cuneate or rounded, margin finely 6–11-toothed, apex acuminate. Panicle leaf-opposed, loose, basal branches well developed; peduncle 4–8 cm, with dense rubiginous arachnoid tomentum. Pedicel 1–1.3 mm, subglabrate. Buds obovoid, 1.7–2.8 mm, apex rounded. Calyx teeth inconspicuous. Ovary oval; style short. Berry globose, 8–10 mm in diam. Seeds obovoid, apex subrounded, chalazal knot elliptic, raphe raised. Fl. May, fr. Aug–Sep.

- Forests or shrublands by streams, hillsides; 600–800 m. Guangdong, Hunan, Jiangxi.