

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 adhesive 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 obovate, 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; peduncles 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 *xiaoye 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 pseudo-terminal 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; *Psedera thunbergii* (Siebold & Zuccarini) Nakai; *P. tricuspidata* (Siebold & Zuccarini) Rehder; *Quinaria tricuspidata* (Siebold & Zuccarini) Koehne; *Vitis inconspicua* 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 elliptic, 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.

