

## 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 *Tetragium 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 *Tetragium* 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. godefreyanum*
        - 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. tsaianum*  
 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. *Tetrastigma* subg. *Tetrastigma*

#### 崖爬藤亚属 *ya pa teng ya shu*

*Vitis* sect. *Tetrastigma* 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. *Tetrastigma 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; *Tetrastigma 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. *Tetrastigma 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. *Tetrastigma 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 corniculate, 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,

inconspicuous 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 rostrate, 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 conform, 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 tsaianum*** 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 obsecta* 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. obsecta* 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.

