

### 39. TYLOPHORA R. Brown, Prodr. 460. 1810.

娃儿藤属 wa er teng shu

*Henrya* Hemsley 1889, not Nees 1844; *Henryastrum* Happ; *Hoyopsis* H. Léveillé; *Neohenrya* Hemsley.

Plants usually perennial lianas, less often herbaceous and/or erect. Inflorescences extra-axillary, rarely terminal, mostly with several cymules born along a simple or branched, often zigzag rachis, less often umbel-like; cymules racemelike or sometimes umbel-like. Calyx with basal glands. Corolla rotate or subrotate, deeply 5-lobed; lobes narrowly overlapping to right to subvalvate, often distinctly veined. Corona lobes usually erect, turgid, adnate to and not exceeding gynostegium, rarely  $\pm$  spreading, circular. Anthers short, appendages arching over stigma head; pollinia 2 per pollinarium, horizontal, suberect, rarely erect, caudicles ascending or suberect, retinaculum small. Stigma head depressed, flattened or concave, rarely longer than anthers. Follicles oblong-lanceolate or fusiform. Seeds comose.

About 60 species: tropical and subtropical Asia, Africa, and Australia; 35 species in China.

- 1a. Stems erect, sometimes tip tending to twine.
  - 2a. Leaf blade linear-lanceolate to narrowly lanceolate, 1.5–10 mm wide; inflorescences sessile or nearly so, 4–7-flowered ..... 1. *T. nana*
  - 2b. Leaf blade ovate-oblong or ovate-elliptic, 8–35 mm wide; inflorescences with peduncle 1–6 cm, mostly longer than leaves.
    - 3a. Leaf blade 0.8–1.2 cm wide, with 3 basal and ca. 2 lateral veins; petiole 5–7 mm ..... 2. *T. secamonoides*
    - 3b. Leaf blade 1.5–4 cm wide, lateral veins ca. 4 pairs; petiole 20–30 mm.
      - 4a. Corolla glabrous; inflorescences strictly lateral ..... 5. *T. tsiangii*
      - 4b. Corolla lobes hairy; upper inflorescences often subtended by reduced leaves and aggregated into terminal synflorescence.
        - 5a. Corolla lobes to 3 mm, sparsely pilose ..... 3. *T. yunnanensis*
        - 5b. Corolla lobes 5(–7) mm, densely puberulent ..... 4. *T. rockii*
  - 1b. Stems climbing or prostrate.
    - 6a. Petiole articulated just above base; stems papillate ..... 12. *T. cycleoides*
    - 6b. Petiole not articulated; stems not papillate.
      - 7a. Peduncle usually shorter than pedicels, rachis always short, unbranched.
        - 8a. Corona lobes circular to almost square, somewhat spreading, with slender, erect or inflexed tip, as long as gynostegium ..... 34. *T. glabra*
        - 8b. Corona lobes ovoid, erect and closely appressed to anthers, distinctly shorter than gynostegium.
          - 9a. Leaf blade membranous, tip acute or short acuminate, rarely mucronate; stems twining ..... 23. *T. henryi*
          - 9b. Leaf blade papery to almost leathery, tip rounded or apiculate; stems at first prostrate, only occasionally twining at tip.
            - 10a. Leaf blade oblong lanceolate to ovate, abaxially glabrous or puberulent on midrib only; petiole and calyx glabrous ..... 20. *T. arenicola*
            - 10b. Leaf blade circular, abaxially distinctly pubescent; petiole and calyx hairy.
              - 11a. Stems leafy throughout, only occasionally twining; corona lobes erect ..... 19. *T. rotundifolia*
              - 11b. Apical part of stems apparently few leaved, twining; corona lobes stellate patent ..... 35. *T. oligophylla*
        - 7b. Peduncle usually longer than pedicels, rachis often many branched.
          - 12a. Abaxial leaf surface uniformly covered with papilla-based hooked hairs ..... 15. *T. uncinata*
          - 12b. Leaves without hooked hairs.
            - 13a. Stems hairy all round, at least when young.
              - 14a. Leaves lanceolate,  $> 4 \times$  as long as broad ..... 7. *T. insulana*
              - 14b. Leaves ovate,  $< 3 \times$  as long as broad.
                - 15a. Leaves glabrous ..... 14. *T. brownii*
                - 15b. Leaves hairy, usually densely so at least abaxially.
                  - 16a. Stem hairs pale, appressed; inflorescences about as long as petiole ..... 18. *T. astephanoides*
                  - 16b. Stem hairs softly yellowish or rusty pilose, hairs erect or curved toward base of stem; inflorescences much longer than petiole.
                    - 17a. Internodes glabrescent; base of leaf blade broadly cuneate to rounded; corolla lobes ca.  $5 \times 1.6$  mm ..... 16. *T. forrestii*
                    - 17b. Internodes persistently hairy; base of leaf blade cordate to subcordate; corolla lobes ca.  $1.5\text{--}2.5 \times 1\text{--}1.2$  mm, obtuse ..... 17. *T. ovata*
        - 13b. Stems glabrous or with hairs along 1 or 2 sides, often glabrescent.
          - 18a. Leaf blade linear or linear-lanceolate, 5 or more times as long as wide.

- 19a. Leaf blade less than 3 mm wide ..... 10. *T. oshimae*  
 19b. Leaf blade 4–35 mm wide.  
     20a. Plant pubescent throughout; inflorescences not branched ..... 7. *T. insulana*  
     20b. Internodes and leaves except for midrib glabrous or very sparsely hairy;  
         inflorescences usually branched.  
         21a. Leaves leathery or thick papery, often less than 5 times as long as wide,  
             abaxially minutely papillate, lateral veins obscure ..... 6. *T. silvestris*  
         21b. Leaves membranous, lateral veins prominent.  
             22a. Petiole 3–7 mm; leaf blade 4–11 mm wide ..... 8. *T. kerrii*  
             22b. Petiole 15–18 mm; leaf blade up to 30–35 mm wide ..... 9. *T. longifolia*
- 18b. Leaf blade ovate, elliptic, ovate-oblong, or oblong-lanceolate, less than 5 times  
 as long as wide.  
     23a. Corona lobes expanded into truncate dorsal lobe; leaves with prominent  
         scattered tubercles; stem hairs in 2 lines, thick, stiffly erect ..... 33. *T. tuberculata*  
     23b. Corona lobes ovoid to almost globose, dorsally rounded; leaves smooth  
         or minutely densely papillate; stem hairs absent or slender, appressed.  
     24a. Lateral veins of leaf blade obscure abaxially.  
         25a. Leaf blade leathery, abaxially minutely papillate ..... 6. *T. silvestris*  
         25b. Leaf blade papery, not papillate.  
             26a. Leaf midvein and petiole pubescent or puberulent; base of leaf  
                 blade cuneate to rounded; sepals ovate, with basal glands inside  
                 ..... 29. *T. flexuosa*  
             26b. Leaf midvein and petiole glabrous; base of leaf blade  
                 rounded to shallowly cordate; sepals oblong, without glands  
                 inside ..... 30. *T. leptantha*
- 24b. Lateral veins of leaf blade conspicuous.  
     27a. Lateral leaf veins 12–16 pairs ..... 11. *T. anthopotamica*  
     27b. Lateral leaf veins 3–7 pairs.  
         28a. Leaf blade abaxially distinctly pubescent.  
             29a. Base of leaf blade broadly cuneate to rounded ..... 16. *T. forrestii*  
             29b. Base of leaf blade cordate to truncate.  
                 30a. Leaf blade ovate-oblong, 2–3 cm; stems pubescent  
                     along 1 side only ..... 28. *T. silvestrii*  
                 30b. Leaf blade lanceolate, 3.5–7 cm; stems pubescent all  
                     round ..... 7. *T. insulana*
- 28b. Leaf blade abaxially glabrous or sparsely puberulent along mid-  
 vein only.  
     31a. Inflorescences always shorter than leaves.  
         32a. Corolla exterior hairy.  
             33a. Inflorescences congested, umbel-like clusters of  
                 cymules; peduncle purplish red; corolla purplish red,  
                 outside yellowish pilose, inside villous ..... 13. *T. picta*  
             33b. Inflorescences lax, little branched; peduncle greenish;  
                 corolla yellowish, greenish, or greenish orange,  
                 glabrous ..... 21. *T. tengii*  
         32b. Corolla exterior glabrous.  
             34a. Inflorescences unbranched, with 1 or 2  
                 cymules; leaves thin papery ..... 22. *T. chingtungensis*  
             34b. Inflorescences forked, with several cymules;  
                 leaves membranous.  
                 35a. Corolla purple, lobes ovate, ca. 2 × 1.5 mm ..... 23. *T. henryi*  
                 35b. Corolla yellowish white, lobes oblong,  
                     ca. 4 × 2.5 mm ..... 24. *T. membranacea*
- 31b. Inflorescences longer than leaves.  
     36a. Leaf blade oblong-ovate to hastate, base cordate;  
         corolla purple, 2–3 mm in diam. .... 31. *T. floribunda*  
     36b. Leaf blade ovate or ovate-oblong, base cuneate to  
         truncate, occasionally almost cordate; corolla greenish  
         or greenish orange, 4–6 mm in diam.  
         37a. Cymules lax, racemelike; inflorescences

- divaricately many branched, to 32 cm ..... 27. *T. augustiniana*
- 37b. Cymules umbel-like; inflorescences few branched and not conspicuously divaricate.
- 38a. Leaf blade 3–5.5 cm, abaxial surface minutely very densely and obscurely papillate (use good hand lens) ..... 32. *T. gracilentia*
- 38b. Leaf blade (4–)6.5–14 cm, abaxial surface smooth or obscurely and sparsely papillate.
- 39a. Stems and petioles yellowish pubescent; leaf blade smooth abaxially ..... 25. *T. hui*
- 39b. All parts glabrous; leaf blade obscurely minute papillate abaxially ..... 26. *T. koi*

**1. *Tylophora nana*** C. K. Schneider in Sargent, Pl. Wilson. 3: 351. 1916.

汶川娃儿藤 wen chuan wa er teng

*Tylophora nana* var. *guansuensis* L. C. Wang & X. G. Sun.

Shrublets erect, to 50 cm tall, most parts puberulent, more vigorous stems tending to twine. Petiole 1–2 mm, puberulent; leaf blade linear-lanceolate, 1–3.8 cm × 2–6 mm, base rounded, margin revolute, apex cuspidate; lateral veins obscure. Inflorescences sessile or subsessile, 4–10-flowered. Pedicel slender, 5–12 mm. Flower buds lanceolate in outline, ca. 5 mm. Sepals linear-lanceolate, 1–1.5 × ca. 0.5 mm. Corolla lobes linear-lanceolate, 5–7 × ca. 1 mm, much longer than tube. Corona lobes ovate-triangular, apex acuminate, reaching middle of gynostegium. Anthers nearly square, appendages orbicular; pollinia subhorizontal. Stigma head rounded, minutely depressed in center. Follicles lanceolate in outline, 4.5–6 cm × 3–5 mm, glabrous. Fl. Mar–Jun, fr. Jul–Aug.

• Dryland thickets; 1000–1800 m. Gansu (Minshan), Sichuan (Wenchuan).

**2. *Tylophora secamonoides*** Tsiang, Sunyatsenia 3: 217. 1936.

蛇胆草 she dan cao

ca. 4 pairs. Inflorescences axillary and terminal, longer than leaves, uppermost sometimes subtended by reduced leaves and forming long terminal panicle or thyrses; rachis simple or branched; cymules umbel-like or irregular and poorly defined, many flowered; peduncle to 6 cm. Pedicel to 1.8 cm. Sepals linear-lanceolate, ca. 1.5 mm, ciliate. Corolla rotate; lobes oblong, 3–4 × 1.5–2 mm, ciliate, glabrous outside, sparsely pilose inside. Corona lobes ovoid, pouched, obtuse. Anthers nearly square, appendages rounded; pollinia oblong, horizontal. Stigma head depressed. Follicles lanceolate in outline, 4–6 cm × ca. 7 mm. Seeds ovate, ca. 5 × 3 mm; coma ca. 2.5 cm. Fl. May–Aug, fr. Aug–Nov.

• Thickets, grasslands; below 2000 m. Guizhou, Sichuan, Yunnan.

The roots are used to treat malaria and fever and the seed coma to stop bleeding.

**4. *Tylophora rockii*** M. G. Gilbert & P. T. Li in M. G. Gilbert, W. D. Stevens, & P. T. Li, Novon 5: 15. 1995.

山娃儿藤 shan wa er teng

Shrublets erect, to 50 cm tall, pubescent or puberulent except for corolla and adaxial leaf surface. Petiole ca. 5 mm, with 4 or 5 glands adaxially; leaf blade ovate-oblong, 2–4 × 0.8–1.2 cm, subleathery, base rounded, apex acute; basal veins 3, lateral veins 1 pair. Inflorescences terminal and extra-axillary, 9–15-flowered, longer than leaves; rachis branched but very contracted so that inflorescences umbel-like; peduncle 1–1.6 cm. Pedicel to 6 mm. Sepals oblong-ovate, ca. 1 × 0.5 mm. Corolla rotate; tube ca. 5 mm; lobes greenish, ovate-oblong, ca. 2.5 × 1 mm. Corona lobes ovoid, apex obtuse. Anthers rhomboid; pollinia subglobose, subhorizontal, caudicles ascending, retinaculum ellipsoid. Stigma head 5-angled, apex apiculate. Fl. Jun–Aug.

• Thickets; low to middle altitudes. Guangxi, Hainan.

The roots are used in Guangxi for the treatment of cough.

**3. *Tylophora yunnanensis*** Schlechter, Notes Roy. Bot. Gard. Edinburgh 8: 17. 1913.

云南娃儿藤 yun nan wa er teng

Herbs erect, to 50 cm, occasionally ± twining at tip, puberulent throughout. Rootstock a dense cluster of fleshy roots. Petiole 2–3 cm; leaf blade ovate to ovate-elliptic 3–8 × 1.5–3.5(–6) cm, papery, glabrescent, base rounded to cuneate, apex obtuse and apiculate, less often acute; lateral veins

Herbs erect, to 70 cm. Stems little branched, tending to twine at apex, uniformly puberulent. Petiole ca. 1.5 cm; leaf blade oblong-obovate, to 9.5 × 4 cm, sparsely puberulent, uppermost and lowermost reduced, base cuneate to rounded, margin undulate, apex rounded-apiculate; lateral veins 4 or 5 pairs. Inflorescences extra-axillary from upper nodes, to 8 cm, mostly sessile with long first internode; cymules short, densely racemelike to umbel-like. Pedicel 1(–2) cm. Sepals linear-triangular, ca. 3 mm. Corolla purplish, stiffly rotate, 8–10 mm in diam.; lobes oblong, 5(–7) × 2.5–3 mm, densely puberulent inside, apex rounded. Corona lobes reaching base of anther appendages, acute. Gynostegium ca. 1.5 mm high; anther appendages broader than long. Stigma head broadly dome-shaped with light colored center. Fruit not seen.

• Forests; 3300 m. Sichuan (Muti Konka).

**5. *Tylophora tsiangii*** (P. T. Li) M. G. Gilbert, W. D. Stevens, & P. T. Li, Novon 5: 15. 1995.

曲序娃儿藤 qu xu wa er teng

*Cynanchum tsiangii* P. T. Li, Bull. Bot. Res., Harbin 3(1): 103. 1983; *Vincetoxicum tsiangii* (P. T. Li) P. T. Li.

Herbs, most parts hispid. Stems erect, to 40 cm tall. Leaves opposite; petiole 1–2 mm; leaf blade drying brownish, ovate, 1.5–3.5 × 1–2.5 cm, base rounded, apex acute; lateral veins 4 or 5 pairs. Inflorescences with several racemelike cymules along zigzag rachis; peduncle ca. 7 mm, to 4 cm in fruit. Pedicel 2–5 mm, ca. 1.1 cm in fruit. Sepals lanceolate, ca. 2.5 × 0.5 mm, densely hispid outside, glabrous inside. Corolla whitish, rotate; lobes lanceolate, ca. 2.5 × 1.5 mm, glabrous. Corona lobes elliptic, fleshy, apex acute, reaching middle of stamens, with minute, basal, adaxial scale. Stamens longer than pistil; anthers nearly square; pollinia ellipsoid. Stigma head discoid. Follicles paired, widely divergent, ca. 4.5 cm × 8 mm, puberulent. Seeds brown, ca. 7 × 4 mm; coma ca. 2 cm. Fl. Oct.

Thickets; 1300 m. Guizhou [Vietnam].

6. *Tylophora silvestris* Tsiang, Sunyatsenia 3: 226. 1936.

贵州娃儿藤 gui zhou wa er teng

Lianas to 2 m. Branches pale gray, glabrous. Petiole ca. 5 mm, puberulent; leaf blade narrowly oblong-lanceolate, 5–9 × 1–1.2 cm, leathery, glabrous except for midvein, base rounded, apex acute; basal veins 3, lateral veins ca. 4 pairs. Inflorescences extra-axillary, lax, up to as long as leaves, rachis usually branched, zigzag; cymules lax, racemelike; peduncle to 6 cm. Pedicel 1–2(–6) mm, pubescent. Sepals oblong, ca. 1.5 × 1 mm, pubescent, ciliate; glands 5. Corolla purple, occasionally pale yellow, rotate; lobes ovate, 2.5–3.5 × 1.4–2 mm, obtuse. Corona lobes ovate, pouched. Anthers nearly square, appendages white, rounded; pollinia globose, horizontal. Ovaries glabrous. Stigma head flat with raised center. Follicles lanceolate in outline, ca. 7 cm × 5 mm, apex acuminate, glabrous. Fl. Mar–May, fr. Jun–Sep.

• Forests, thickets, 300–2400 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, late in outline, 4.5–11 × ca. 1 cm. Seeds oblong, ca. 8 mm; coma ca. 2.5 cm. Fl. May–Aug, fr. Aug–Dec.

Thickets, valleys. Fujian, Guangdong, Guangxi, Guizhou, Sichuan, Yunnan [Cambodia, Thailand, Vietnam].

The roots are used for the treatment of snake bites and cancerous swellings.

9. *Tylophora longifolia* Wight, Contr. Bot. India 50. 1834.

长叶娃儿藤 chang ye wa er teng

Lianas glabrous throughout. Petiole 1.5–1.8 cm; leaf blade narrowly lanceolate, to 17 × 3.5 cm, base truncate to shallowly cordate, apex acute; lateral veins 5–7 pairs, prominent. Inflorescences up to 5 cm, sometimes grouped into a conical panicle on short axillary branches with reduced leaves; peduncle 1–2 cm; rachis almost straight, often forked; cymules umbel-like. Pedicel to 7 mm. Sepals triangular-lanceolate, ca. 1.2 mm. Corolla subrotate, ca. 6 mm in diam.; lobes triangular-ovate, ca. 2.5 × 1.5 mm. Corona lobes ovoid, apex acute, reaching anther base.

Xizang, Yunnan, Zhejiang.

7. *Tylophora insulana* Tsiang & P. T. Li, Acta Phytotax. Sin. 12: 134. 1974.

台湾娃儿藤 tai wan wa er teng

Lianas to 2 m, pubescent throughout. Petiole ca. 5 mm; leaf blade lanceolate, 3.5–7 × 0.8–1.5 cm, papery, base truncate to subcordate, apex acuminate; lateral veins 3–5 pairs. Inflorescences shorter than leaves; peduncle slender; rachis simple, longer than peduncle; cymules umbel-like, many flowered. Sepals lanceolate; glands absent. Corolla rotate; tube short; lobes broadly ovate. Corona lobes subglobose, apex rounded and reaching base of anthers. Anthers oblong, appendages rounded; pollinia oblong, horizontal. Ovaries glabrous. Stigma head discoid.

• Montane forests. Taiwan.

8. *Tylophora kerrii* Craib, Bull. Misc. Inform. Kew 1911: 417. 1911.

人参娃儿藤 ren shen wa er teng

*Tylophora balansae* Costantin; *T. pseudotenerrima* Costantin.

Lianas usually glabrous except for interpetiolar lines, petioles, calyx, and corolla. Petiole 3–7 mm; leaf blade linear-lanceolate, 5.5–9 × ca. 1.5 cm, base rounded to shallowly cordate, apex acute; lateral veins 4–8 pairs. Inflorescences pendent, 2–8 cm; peduncle 1–5 cm; rachis zigzag, laxly branched. Pedicel 3–10 mm. Sepals lanceolate, ca. 1.5 mm, sparsely hairy, apex recurved; glands 5. Corolla green turning yellow, less often purplish to white, ± rotate, ca. 0.4–1.4(–2) cm in diam.; lobes oblong, to 6 × 1.5 mm, partly papillate-pubescent. Corona lobes ovoid, reaching anther base. Anther appendages rounded; pollinia globose, suberect to horizontal. Ovaries glabrous. Stigma head subapiculate. Follicles lanceo-

Yunnan [Bangladesh].

10. *Tylophora oshimae* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30: 197. 1911.

小花娃儿藤 xiao hua wa er teng

Herbs twining. Stems slender, to 1 m, with 2 well-defined lines of hairs. Petiole ca. 5 mm, minutely hirsute to glabrescent; leaf blade linear, ca. 6 cm × 3 mm, minutely hirsute then glabrescent except for densely hairy adaxial side of midrib, base obtuse, apex acute; lateral veins slightly elevated. Inflorescences few flowered. Pedicel ca. 4 mm. Sepals ovate-triangular, ciliate. Corolla subrotate, ca. 8 mm in diam.; lobes oblong-ovate, ca. 3 × 1.5 mm, obtuse, glabrous outside, pubescent inside. Pollinia globose, horizontal. Fl. Jan.

• Thickets. Taiwan.

11. *Tylophora anthopotamica* (Handel-Mazzetti) Tsiang & Zhang in Tsiang & P. T. Li, Acta Phytotax. Sin. 12: 133. 1974.

花溪娃儿藤 *hua xi wa er teng*

*Cynanchum anthopotamicum* Handel-Mazzetti, Symb. Sin. 7: 995. 1936.

Lianas woody, rhizomatous. Stem tips twining, to 1.5 m, densely to sparsely minutely hirsute. Petiole 3–5 mm; leaf blade lanceolate, 4–11 × 1–2 cm, papery, base broadly cuneate; lateral veins 12–16 pairs. Inflorescences axillary, raceme-like; peduncle ca. 2.5 cm; bracteoles basal. Pedicel slender, 5–8 mm. Sepals triangular-lanceolate, ca. 1.5 mm, apex acuminate, often recurved. Corolla purple-brown, rotate; lobes triangular-lanceolate, 5–6 mm, recurved, glabrous. Corona short, ringlike; lobes globose-triangular, as long as anthers, back convex, apex acute; appendages ovate. Pollinia ellipsoid, erect. Fl. Jun.

- Montane forests; 900 m. SW Guizhou.

**12. *Tylophora cycleoides*** Tsiang, Sunyatsenia 3: 224. 1936.

轮环娃儿藤 *lun huan wa er teng*

Lianas woody, to 1.5 m. Stems pale gray, sparsely pubescent along 2 lines, densely papillate. Petiole ca. 1 cm, grooved adaxially, base sharply delineated from rest of petiole by dark line; leaf blade ovate, 2–7 × 2–3.5 cm, thick papery, glabrous, base rounded to very minutely cordate, apex acute; basal veins 3, prominent, ascending; lateral veins 2 or 3 pairs. Inflorescences with single, ca. 10-flowered, umbel-like cymule; peduncle 0.2–2 cm. Pedicel slender, 6–12 mm. Sepals elliptic, ca. 1 × 0.5 mm; glands few. Corolla purple, rotate, glabrous; tube ca. 1 mm; lobes oblong or ovate-oblong, ca. 4 × 2 mm. Corona lobes ovate, fleshy, pouched, apex rounded and reaching base of anthers. Anthers ca. 0.5 mm, appendages rounded; pollinia globose, horizontal. Ovaries glabrous. Follicles (immature) cylindrical, ca. 11 cm × 5 mm, divergent at 180°, apex long acute. Fl. Jul-Sep.

- Montane forests. Guangxi, Hainan.

**13. *Tylophora picta*** Tsiang, Sunyatsenia 3: 218. 1936.

in diam.; lobes ovate-triangular, 3–4.5 × 1–2 mm, glabrous. Corona lobes ovate, covering bases of anthers. Anther appendages rounded; pollinia globose, horizontal. Follicles 4–6 cm × 7–10 mm, glabrous. Seeds ovate, ca. 4.5 mm; coma ca. 1 cm. Fl. Jul-Aug, fr. Sep-Oct.

- Thickets. 200–500 m. Guangdong, Taiwan.

**15. *Tylophora uncinata*** M. G. Gilbert & P. T. Li in M. G. Gilbert, W. D. Stevens, & P. T. Li, Novon 5: 16. 1995.

钩毛娃儿藤 *gou mao wa er teng*

Lianas. Stems glabrescent. Petiole ca. 1.5 cm; leaf blade ovate, 3.5–9 × 2.3–5.5 cm, stiffly papery, adaxially glabrous, abaxially uniformly pubescent with hairs having papillalike bases and strongly hooked tips, base cordate with narrow sinus, apex acute, apiculate. Cymes shorter than leaves, cymules densely racemelike; peduncle to 2 cm, rachis zigzag, sometimes absent. Pedicel to 6 mm. Sepals ca. 1.7 × 0.7 mm, oblong-lanceolate, subglabrous except for a few hooked hairs, apex acute. Corolla green, 3.5–5 mm; tube ca. 0.5 mm; lobes ovate to ovate-oblong, ca. 3.5 × 1.3 mm. Corona lobes ovate, ca. 0.5 × 0.2 mm, pouched, apex obtuse, covering base of an-

紫叶娃儿藤 *zi ye wa er teng*

Lianas glabrous except for sparsely yellowish pilose nodes, base of leaf blade, bracts, and exterior of calyx and corolla. Stems to 6 m. Petiole 2–4 cm, slightly flattened; leaf blade ovate-oblong to suborbicular, 6–13 × (3.5–)5–11 cm, leathery to subsucculent, base rounded to subcordate, apex mucronate; lateral veins 4–7 pairs, slightly flattened, abaxially purplish red. Inflorescences pedunculate, congested, umbel-like clusters of cymules, 2–5 × ca. 3 cm, many flowered; peduncle purplish red; bracts blackish, ca. 3 mm. Pedicel up to 5 mm. Sepals ovate-triangular, ca. 1.5 × 1 mm; glands absent. Corolla purplish red, rotate, villous inside; tube ca. 1 mm; lobes ovate-oblong, ca. 3 × 1 mm. Corona lobes ovate, pouched, reaching base of anthers. Pollinia oblong, horizontal. Ovaries glabrous. Stigma head subdepressed, slightly longer than anthers. Follicles lanceolate in outline, ca. 8 × 1 cm, glabrous. Seeds ovate, ca. 10 × 5 mm; coma to 4 cm. Fl. May-Sep, fr. Oct-Dec.

- Moist valleys. Hainan.

**14. *Tylophora brownii*** Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30: 195. 1911.

光叶娃儿藤 *guang ye wa er teng*

*Tylophora ovata* (Lindley) Hooker ex Steudel var. *brownii* (Hayata) Tsiang & P. T. Li.

Lianas. Stems to 3 m, slender, appressed pubescent to glabrous. Petiole 1–2 cm; leaf blade stiffly papery, ovate, rarely oblong-ovate, 4–8 × 2–4 cm, brownish when dried, glabrous on both surfaces, or margin only pubescent, base rounded or cordate, apex apiculate or acute; basal veins 3, lateral veins 3 or 4 pairs, not prominent. Peduncle 1–2 cm, glabrous or glabrescent; rachis up to 8 mm, not zigzag; cymules short racemelike. Pedicel very slender, ca. 1 cm. Sepals ovate-triangular, 1–1.5 mm, glabrous. Corolla rotate, ca. 1 cm

thers. Anther appendages rounded; pollinia globose, horizontal. Stigma head flat, 5-angled, depressed in center. Follicles linear-lanceolate in outline, ca. 5 cm × 6 mm, apex acuminate. Fl. Aug-Sep.

- 400 m. Hainan (Po-ting).

**16. *Tylophora forrestii*** M. G. Gilbert & P. T. Li in M. G. Gilbert, W. D. Stevens, & P. T. Li, Novon 5: 13. 1995.

大花娃儿藤 *da hua wa er teng*

Lianas. Stems uniformly pubescent when young, soon glabrescent and pubescent along 1 side. Petiole ca. 2 cm; leaf blade ovate, to 9.4 × 4.2 cm, prominently pilose along veins when young, glabrescent, base broadly cuneate to rounded, apex acuminate; lateral veins 4 or 5 pairs. Cymes to 8 cm; cymules umbel-like, ca. 6-flowered; peduncle to 4.5 cm. Pedicel ca. 1.5 cm. Sepals ca. 3 × 0.4 mm, ciliate. Corolla yellow-green, ca. 6 mm; lobes ca. 1.6 m wide, glabrous. Corona lobes reaching base of anthers, acute. Gynostegium ca. 1.5 mm high; corpuscula longer than ellipsoid pollinia.

- Forest margins; 2100 m. Yunnan.

**17. *Tylophora ovata*** (Lindley) Hooker ex Steudel, Nomencl. Bot. ed. 2, 2: 726. 1841.

娃儿藤 wa er teng

*Diplolepis ovata* Lindley, Trans. Hort. Soc. London 6: 286. 1826; *Gymnema hirsuta* Wallich; *Tylophora atro-folliculata* F. P. Metcalf; *T. hirsuta* (Wallich) Wight; *T. hispida* Decaisne; *T. hispida* var. *brownii* Hayata; *T. lanyuensis* Liu & Lu; *T. mollissima* Wallich ex Wight; *T. panzhutenga* Z. Y. Zhu.

Lianas to 5 m, rusty hispid, villous, or pubescent except for adaxial leaf surface and sometimes follicles. Petiole 0.5–3 cm; leaf blade ovate, 2.5–12.5(–16) × 1.2–9 cm, base cordate to subcordate, apex acute or short acuminate and mucronate; lateral veins 4–6 pairs. Inflorescences 4–13 cm; peduncle 0.5–2 cm; rachis simple, zigzag, occasionally forked; cymules sessile, racemelike, dense, many flowered. Pedicel threadlike, 5–10 mm. Sepals subulate-acuminate to ovate, ciliate; glands 5 or absent. Corolla yellowish or yellow-green, rotate, ca. 5 mm in diam., glabrous or puberulent; tube ca. 1 mm; lobes oblong-ovate or ovate, ca. 1.5–2.5 × 1–1.2 mm, obtuse. Corona lobes ovoid, pouched, apex obtuse, covering base of anthers. Anther appendages rounded; pollinia globose to ovoid, horizontal. Stigma head a 5-angled plate, depressed. Follicles lanceolate to oblong-lanceolate in outline, 4–7 cm × 3–12 mm, puberulent or glabrous, apex sometimes recurved. Seeds oval, 5–7 × 2–4 mm; coma 2–3.5 cm. Fl. Apr–Aug, fr. Aug–Dec.

Forests, mixed woods, thickets; 200–1000 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Sichuan, Taiwan, Yunnan [India, Myanmar, Nepal, Pakistan, Vietnam].

The roots are used for the treatment of leukemia, asthma, snake bites, and traumatic injury.

**18. *Tylophora astephanoides*** Tsiang & P. T. Li, Acta Phytotax. Sin. 12: 138. 1974.

Thickets; 200–1000 m. Guangdong, Guangxi, Hainan [India, Nepal].

**20. *Tylophora arenicola*** Merrill, Lingnan Sci. J. 13: 69. 1934.

虎须娃儿藤 hu xu wa er teng

Lianas to 1 m, sometimes prostrate. Stems sparsely puberulent. Petiole 3–10 mm; leaf blade oblong to ovate, 2–8.5 × 0.5–4 cm, papery to subleathery, glabrous to abaxially sparsely puberulent, base rounded, apex rounded or apiculate; lateral veins ca. 4 pairs, flattened. Inflorescences shorter than leaves; cymules clustered, dense, racemelike. Pedicel ca. 1 cm. Sepals ovate-triangular, ca. 1.5 × 1 mm; glands 5. Corolla greenish yellow, rotate or subrotate; lobes oblong, ca. 3.5 × 2 mm, veined, glabrous. Corona lobes broadly oblate, pouched, apex obtuse to subtruncate, covering anther base. Anther appendages rounded; pollinia globose, horizontal. Stigma head depressed. Follicles lanceolate, 4–6.3 cm × 7–10 mm, glabrous. Seeds ovate, ca. 4 × 3 mm; coma ca. 2 cm. Fl. May–Aug, fr. Sep–Dec.

Thickets, sandy seashores. Guangdong, Guangxi, Hainan

阔叶娃儿藤 kuo ye wa er teng

Lianas. Stems slender, to 3 m, pubescent. Petiole 1.2–4 cm; leaf blade broadly ovate, 6.5–15 × 3.5–9 cm, thin papery, base rounded, apex obtuse and mucronate; lateral veins 5–7 pairs, flattened. Inflorescences ca. as long as petiole; rachis simple, zigzag; cymules umbel-like, many flowered. Pedicel 4–8 mm, slender. Sepals oblong-ovate, ca. 1.5 × 0.8 mm; glands absent. Corolla greenish white, rotate, ca. 5 mm in diam.; tube shorter than lobes; lobes broadly ovate, ca. 3.5 × 2.5 mm, sparsely pubescent outside. Corona lobes subglobose, apex rounded or truncate and reaching base of anthers. Anther appendages as long as stigma head; pollinia subglobose, pendulous. Ovaries glabrous. Stigma head elevated, apex 2-cleft. Fl. Jun.

• Montane forests; 1100 m. S Yunnan.

**19. *Tylophora rotundifolia*** Buchanan-Hamilton ex Wight, Contr. Bot. India 50. 1834.

圆叶娃儿藤 yuan ye wa er teng

*Tylophora trichophylla* Tsiang.

Herbs. Stems to 3 m, hollow when dried, at first prostrate, apical part sometimes twining, most parts crisp pilose. Petiole 2–5 mm; leaf blade 4–9 × 3.5–8 cm, lowermost suborbicular and flat on ground, upper smaller, ovate, or obovate, abaxially glabrous or uniformly minutely puberulent, base rounded, apex short mucronate or rounded; lateral veins 4–6 pairs. Inflorescences ca. 2 cm; peduncle 5–8 mm; rachis simple, zigzag; cymules sessile, racemelike, dense. Pedicel 1–2.5(–3) cm. Sepals ovate-triangular; glands 5. Corolla yellow, rotate, twice as long as calyx; tube short; lobes oblong. Corona lobes ovate, pouched, apex reaching to base of anthers. Anthers square, appendages rounded; pollinia globose, horizontal. Stigma head flat. Follicles lanceolate, ca. 6 × 1 cm, slightly puberulent. Seeds ovate; coma ca. 2 cm. Fl. May.

[Vietnam].

**21. *Tylophora tengii*** Tsiang, Sunyatsenia 3: 228. 1936.

普定娃儿藤 pu ding wa er teng

Herbs to 1 m. Stems slender, glabrous or sometimes puberulent. Petiole 5–10 mm, adaxially pubescent; leaf blade oblong or oblong-lanceolate, 2.5–4 × 0.8–1.3 cm, thin papery, glabrous except for adaxially puberulent midvein, base retuse-cordate, apex acute; lateral veins 3 or 4 pairs. Inflorescences ca. 2.5 cm, 10–16-flowered; peduncle 1–1.5 cm, rachis simple, less often forked, zigzag, glabrous; cymules ± umbel-like. Pedicel 2–6 mm, glabrous; sepals oblong, ca. 1 × 0.5 mm, ciliate; glands 5. Corolla greenish, rotate, sparsely and minutely puberulent; tube short; lobes broadly ovate, ca. 3 × 3 mm. Corona lobes ovate, apex reaching anther base. Anthers nearly square; appendages broader than long, rounded; pollinia globose, horizontal. Stigma head discoid, apex elevated. Fl. May.

• Forests. Guangxi, S Guizhou.

**22. *Tylophora chingtungensis*** Tsiang & P. T. Li, Acta Phytotax. Sin. 12: 138. 1974.

tax. Sin. 12: 141. 1974.

显脉娃儿藤 xian mai wa er teng

Herbs twining, to 5 m. Stems pubescent along 1 side; axillary glands villous. Petiole 1.5–2 cm, slightly flattened, pubescent; leaf blade elliptic, ca.  $9 \times 5.3$  cm, thin papery, pubescent, glabrescent, base rounded or truncate, margin ciliate, apex acute; lateral veins 5 or 6 pairs, flattened adaxially, elevated abaxially. Inflorescences umbel-like; peduncle to 6 cm, puberulent; cymules solitary or 2 close together. Pedicel ca. 8 mm, glabrescent. Sepals linear-lanceolate, ca.  $2.5 \times 0.7$  mm, villous, ciliate. Corolla white, rotate, ca. 7 mm in diam., glabrous; tube ca. 1 mm; lobes elliptic, ca.  $3 \times 2.5$  mm. Corona lobes ovate, apex acute. Anther appendages ovate; pollinia subglobose, horizontal. Stigma head discoid. Fl. May–Aug.

- Montane forests; 2100 m. Sichuan, Yunnan.

**23. *Tylophora henryi*** Warburg in Schlechter & Warburg, Repert. Spec. Nov. Regni Veg. 3: 313. 1907.

紫花娃儿藤 zi hua wa er teng

Herbs. Stems twining, to 3 m, stems and petioles pubescent along 1 side. Petiole 2–6 cm; leaf blade ovate to broadly so,  $7.5\text{--}16 \times 3\text{--}13$  cm, membranous, glabrous except for puberulent midvein, base rounded to shallow cordate, apex acute to acuminate; lateral veins 5 or 6 pairs. Cymes 2–6 cm, sometimes sessile; rachis forked or several branched, many flowered, puberulent to glabrous; cymules umbel-like. Pedicel 5–10 mm. Sepals lanceolate, ciliate; glands 5. Corolla purple, rotate; lobes broadly ovate,  $2\text{--}3 \times 1.5\text{--}2$  mm, glabrous outside, puberulent inside. Corona lobes nearly square, apex truncate and reaching anther base. Anther appendages rounded; pollinia globose, horizontal. Stigma head discoid. Follicles lanceolate, ca.  $8 \text{ cm} \times 8 \text{ mm}$ , glabrous. Fl. Jun–Aug, fr. Aug–Nov.

Sepals ovate-oblong, ca.  $1.5 \times 1$  mm. Corolla greenish, rotate, glabrous; tube ca. 1.5 mm; lobes ovate, ca.  $3 \times 2$  mm. Corona lobes ovate, pouched, apex obtuse and reaching anther base. Anther appendages rounded; pollinia subglobose, suberect. Stigma head discoid, apex slightly dome-shaped. Fl. May–Sep.

- Open woods, 1000–2000 m. Guizhou, S Yunnan.

**26. *Tylophora koi*** Merrill, Sunyatsenia 2: 17. 1934.

通天连 tong tian lian

*Tylophora sootepensis* Craib; *T. taiwanensis* Hatusima.

Lianas glabrous throughout. Stems to 3 m, slender. Petiole 0.8–2 cm; leaf blade oblong or oblong-lanceolate,  $4\text{--}8$  ( $\text{--}11$ )  $\times 1\text{--}2.5$  ( $\text{--}4$ ) cm, thin papery to membranous, abaxially densely papillate, base broadly cuneate to subcordate, apex acuminate, sometimes apiculate; lateral veins 4 or 5 pairs. Inflorescences to 11 cm, shorter or longer than leaves; peduncle to 3.5 cm; rachis usually simple, almost straight, with up to 4 cymules; cymules umbel-like. Pedicel 4–8 mm. Sepals ovate-triangular, ca.  $1 \times 1$  mm, margin translucent; glands 5. Corolla greenish orange, rotate, 4–6 mm in diam.; tube short;

- Forests, thickets. Fujian, Guizhou, Henan, Hubei, Hunan, Sichuan.

The roots are used for the treatment of rheumatoid arthritis and snake bites.

**24. *Tylophora membranacea*** Tsiang & P. T. Li, Acta Phytotax. Sin. 12: 141. 1974.

膜叶娃儿藤 mo ye wa er teng

Herbs twining. Stems slender, to 2 m, pubescent along 1 side. Petiole to 2.5 cm, flattened; leaf blade ovate,  $6.5\text{--}14 \times 4\text{--}7.5$  cm, membranous, glabrous, base truncate or shallow cordate, apex acute; lateral veins 5 or 6 pairs, flattened, anastomosing before margin. Inflorescences shorter than leaves, to 7 cm, branched, primary division unequally 3-fid, later branching lax and irregular; cymules 1- or 2-flowered; peduncle 2–2.5 cm. Pedicel 7–14 mm. Sepals ovate, ca.  $1 \times 0.5$  mm, glabrous, without glands. Corolla yellowish white, rotate, to 1 cm in diam.; lobes oblong ca.  $4 \times 2.5$  mm, glabrous outside, pubescent inside. Corona lobes ovate, pouched, apex acute, reaching base of anthers. Anthers nearly square, appendages rounded; pollinia oblong, subhorizontal. Ovaries glabrous. Stigma head discoid. Fl. Jun.

- Forests. E Guangxi.

**25. *Tylophora hui*** Tsiang, Sunyatsenia 3: 236. 1936.

建水娃儿藤 jian shui wa er teng

Lianas to 3 m. Stems pale gray, yellowish pubescent along 1 side. Petiole 1.5–2.5 cm, adaxially puberulent; leaf blade elliptic-oblong to oblong-lanceolate,  $6.5\text{--}14 \times 1.7\text{--}4$  cm, base rounded, apex long acuminate; lateral veins 4–6 pairs. Inflorescences 6–18 cm; peduncle to 3 cm, shorter than apical internodes of rachis; rachis almost straight, usually branched; cymules umbel-like. Pedicel slender, 4–10 mm.

lobes oblong or ovate-oblong, apex obtuse, 4–7-veined, glabrous. Corona lobes ovate, pouched, apex obtuse and covering middle of anthers. Anther appendages rounded; pollinia subglobose, horizontal. Stigma head obscurely 2-cleft. Follicles linear-lanceolate,  $4\text{--}9 \text{ cm} \times \text{ca. } 5 \text{ mm}$ . Seeds ovate; coma ca. 1.5 cm. Fl. Jun–Sep, fr. Jul–Dec.

Humid forests in valleys, thickets; 100–1000 m. Guangdong, Guangxi, Hainan, Hunan, Taiwan, Yunnan [Thailand, Vietnam].

Used for the treatment of snake bites and traumatic injury.

**27. *Tylophora augustiniana*** (Hemsley) Craib, Bull. Misc. Inform. Kew 1911: 417. 1911.

宜昌娃儿藤 yi chang wa er teng

*Henrya augustiniana* Hemsley in F. B. Forbes & Hemsley, J. Linn. Soc., Bot. 26: 111. 1889; *Henryastrum augustinianum* (Hemsley) Happ; *Neohenrya augustiniana* (Hemsley) Hemsley.

Lianas to 2 m, slender, glabrous except sometimes for midvein. Petiole 1.5–2.5 cm; leaf blade ovate-oblong to ovate-lanceolate,  $5.5\text{--}9 \times 2\text{--}4.5$  cm, adaxially puberulent

along midvein, base cordate to rounded or truncate, apex acuminate; lateral veins 5–7 pairs. Inflorescences laxly and divaricately many branched, to 32 cm, many flowered; peduncle 2–3.5 cm, shorter than upper internodes; cymules umbel-like to lax racemelike. Pedicel 0.5–1.5 cm. Sepals ovate-lanceolate, ca. 1.2 × 0.7 mm. Corolla yellowish, rotate, 4–6 (–7) mm in diam.; tube ca. 2 mm in diam.; lobes ovate, ca. 2 × 1.7 mm, middle of inner surface minutely papillate-puberulent. Corona lobes ovoid-globose, pouched, reaching anther base. Anther appendages rounded; pollinia subglobose, horizontal. Stigma head subapiculate. Fl. Jul–Aug.

Open woods. Guangxi, Hubei, Yunnan [Thailand].

**28. *Tylophora silvestrii*** (Pampanini) Tsiang & P. T. Li, Acta Phytotax. Sin. 12: 133. 1974.

湖北娃儿藤 hu bei wa er teng

*Henrya silvestrii* Pampanini, Nuovo Giorn. Bot. Ital. 17: 696. 1910; *Henryastrum silvestrii* (Pampanini) Happ.

Herbs twining. Stems to 1.5 m, slender, pubescent along 1 side. Petiole puberulent, 6–10 mm; leaf blade ovate-oblong, 2–3 × 0.8–1.3 cm, adaxially pubescent, abaxially glabrous and pale gray, base truncate to shallowly cordate, apex acuminate; lateral veins slightly elevated adaxially. Inflorescences dichasial, as long as leaves; peduncle 1.2–2 cm. Pedicel slender, 3–8 mm. Sepals lanceolate, ca. 1 mm. Corolla ca. 5 mm in diam.; lobes lanceolate, ca. 2 × 1 mm. Corona lobes oval, fleshy, shorter than anthers. Anthers reniform, appendages rounded. Fl. Jul.

• Forests, thickets. Hubei.

**29. *Tylophora flexuosa*** R. Brown, Prodr. 460. 1810.

小叶娃儿藤 xiao ye wa er teng

*Asclepias tenuissima* Roxburgh; *A. tetrapetala* Denn. ca. 1 × 0.5 mm; glands absent. Corolla greenish, rotate, glabrous outside, pilose inside; lobes oblong, ca. 3 × 2 mm. Corona lobes ovate, pouched, apex reaching base of anthers. Anthers square, appendages rounded; pollinia ovoid, horizontal. Ovaries glabrous. Stigma head as long as anthers, nearly flattened. Follicles oblong-lanceolate, ca. 12 cm × 5 mm. Seeds ovate, ca. 7 × 3 mm; coma ca. 3 cm. Fl. Apr–Sep, fr. Aug–Dec.

• Open woods, moist bushland. Guangdong, Guangxi, Hainan.

**31. *Tylophora floribunda*** Miquel, Ann. Mus. Bot. Lugduno-Batavum 2: 128. 1866.

多花娃儿藤 duo hua wa er teng

*Tylophora chungii* Merrill ex F. P. Metcalf; *T. shikokiana* Matsumone ex Nakai; *Vincetoxicum floribundum* (Miquel) Franchet & Savatier.

Lianas slender, to 3 m. Stems puberulent along 1 side. Petiole 5–10 mm, puberulent; leaf blade oblong-ovate to ± hastate, 3–5 × 0.6–2.5 cm, membranous to thin papery, abaxially minutely papillate, base cordate to rounded, apex

stedt; *Hoya flexuosa* (R. Brown) Sprengel; *Hoyopsis dielsii* H. Léveillé; *Tylophora carnosa* Wallich ex Wight; *T. dielsii* (H. Léveillé) Hu; *T. hoyopsis* H. Léveillé; *T. tenuis* Blume; *T. tenuissima* (Roxburgh) Wight & Arnott; *T. tetrapetala* (Dennstedt) Suresh; *Vincetoxicum flexuosum* (R. Brown) Kuntze.

Lianas slender, to 2.5 m. Young stems puberulent along 1 side. Petiole 5–10 mm, puberulent; leaf blade ovate to ovate-oblong or oblong-lanceolate, 1–8 × 0.8–4.5 cm, thin papery, glabrous or sometimes ciliate, glabrous or sometimes puberulent along midvein, base cuneate to rounded, apex acute or obtuse, sometimes apiculate. Inflorescence rachis simple to much branched, 3–10 cm; cymules densely to laxly racemelike. Pedicel ca. 1.5 cm. Sepals ovate, glabrous; glands 5. Corolla white, rotate, ca. 5 mm in diam., glabrous outside, pubescent inside; lobes ovate-oblong or ovate-triangular. Corona lobes ovoid, pouched. Anthers short, appendages extending beyond stigma head; pollinia globose, horizontal to suberect. Stigma head semiglobose. Follicles lanceolate in outline, 4–8 cm × 6–10 mm, glabrous. Seeds ovate, 6–8 mm; coma 1.5–3.5 cm. Fl. Apr–Dec, fr. Jul–Dec. 2n = 22.

Open woods, thickets; 100–1000 m. Guangdong, Guangxi, Guizhou, Hainan, Shaanxi, Taiwan, Yunnan [Cambodia, India, Indonesia, Malaysia, Myanmar, Sri Lanka, Thailand, Vietnam].

**30. *Tylophora leptantha*** Tsiang, Sunyatsenia 3: 234. 1936.

广花娃儿藤 guang hua wa er teng

Lianas to 4 cm, glabrous except for corolla. Petiole 1–2.5 cm; leaf blade oblong-lanceolate, 6–16 × 2.5–5 cm, papery, base rounded to shallowly cordate, apex acute or short acuminate; lateral veins ca. 6 pairs. Inflorescences to 12 × 12 cm, many flowered; peduncle purplish; rachis many forked, slightly zigzag, slender; cymules umbel-like or reduced to solitary flowers. Pedicel 2–8 mm; purplish. Sepals oblong,

acute or acuminate; lateral veins 3–5 pairs. Inflorescences lax, longer than leaves, to 11 cm; peduncle zigzag; rachis branched, internodes to 1.6 cm; cymules few flowered, racemelike or umbel-like. Sepals oblong-lanceolate; glands 5. Corolla purple, rotate, ca. 2 mm in diam., glabrous; lobes ovate. Corona lobes ovate, obtuse, apex reaching base of anthers. Anthers nearly square, appendages rounded; pollinia subglobose, horizontal. Stigma head subapiculate. Follicles linear-lanceolate, 4–6 cm × 4–5 mm. Seeds ovate, ca. 4 × 2 mm; coma ca. 2 cm. Fl. May–Sep, fr. Aug–Dec.

Thickets, open woods; 100–700 m. Guangdong, Guangxi, Guizhou, Hunan, Jiangsu, Jiangxi, Zhejiang [Japan, Korea].

The roots are used for the treatment of infantile convulsions, diphtheria, traumatic injury, toothache, and snake bites.

**32. *Tylophora gracilentia*** Tsiang & P. T. Li, Acta Phytotax. Sin. 12: 143. 1974.

天峨娃儿藤 tian e wa er teng

Lianas. Stems to 2 m, gray-green, young branches pubescent along 1 side, glabrescent. Petiole 0.8–2 cm, adaxially



pubescent; leaf blade ovate or ovate-oblong, 3–5.5 × 1–3.5 cm, glabrous except for adaxially puberulent midvein, abaxially very minutely dense papillate, base rounded, apex acuminate; lateral veins 4 or 5 pairs. Inflorescences longer than leaves, umbel-like; peduncle slender, glabrous; rachis 2- or 3-forked. Pedicel 4–6 mm. Sepals oblong-ovate, ca. 1 × 0.5 mm, glabrous; glands present. Corolla greenish, rotate, ca. 4 mm in diam.; tube short; lobes oblong-ovate, ca. 1.5 × 1 mm, glabrous. Corona lobes ovate, pouched, apex acute and reaching base of anthers; pollinia subglobose, horizontal. Ovaries glabrous. Stigma head discoid, apex convex. Fl. May.

- Bushland, open woods. NW Guangxi, S Yunnan.

**33. *Tylophora tuberculata*** M. G. Gilbert & P. T. Li in M. G. Gilbert, W. D. Stevens, & P. T. Li, *Novon* 5: 15. 1995.

个旧娃儿藤 ge jiu wa er teng

Lianas. Stems slender, short pilose along 2 sides. Petiole 5–10 mm, adaxially hairy, glabrescent; leaf blade lanceolate, 2.5–4 × 1.1–1.2 cm, thick papery, glabrous, with prominent scattered tubercles, base rounded-cordate, apex acute. Inflorescences up to 4 cm, much branched, peduncle up to 6 mm, internodes to 1.4 cm. Pedicel 4–6 mm, glabrous. Sepals lanceolate, ca. 0.7 mm, glabrous, tip recurved, acute. Corolla greenish white, rotate to shallowly bowl-shaped, ca. 5 mm in diam., glabrous outside, densely short pilose inside; lobes ovate, ca. 2 × 1.5 mm. Corona lobes reaching base of anther, with prominent, spreading, truncate or subemarginate dorsal appendages, joined at base. Anther appendages short, rounded; pollinia ellipsoid, almost vertical. Stigma head rounded. Old follicles linear lanceolate in outline, ca. 6.5 cm × 5 mm. Fl. May.

- 800 m. Yunnan.

**34. *Tylophora glabra*** Costantin in Lecomte, *Fl. Indo-Chine*

**35. *Tylophora oligophylla*** (Tsiang) M. G. Gilbert, W. D. Stevens, & P. T. Li, *Novon* 5: 14. 1995.

滑藤 hua teng

*Absolmsia oligophylla* Tsiang, *Sunyatsenia* 6: 121. 1941.

Stems at first prostrate and leafy but then twining, to 2 m, pubescent along 2 sides to almost uniformly pubescent, upper parts few leaved. Petiole 5 mm; leaf blade ovate-orbicular, 5–11 × 4.5–10.5 cm, glabrescent adaxially, puberulent abaxially; lateral veins ca. 5 pairs. Cymes subsessile, umbel-like, 4–9-flowered. Sepals oblong, ca. 1 mm, ciliate, valvate; basal glands 5. Corolla purplish green, top-shaped, glabrous outside, puberulent inside; lobes broadly ovate, ca. 2 × 2.5 mm, inflexed, valvate. Corona lobes inserted on back of stamens, ovate, turgid on back, horizontally stellate patent, base rounded, apex acuminate. Gynostegium very short; anthers nearly 4-angled, apical appendages present; pollinia ovoid, pendulous, caudicle subhorizontal, retinaculum ellipsoid. Ovaries glabrous. Stigma head discoid, elevated. Follicles oblong-lanceolate. Fl. Aug.

- Mixed forests; 700 m. S Yunnan (Che-Li Hsien).

4: 109 1912.

长梗娃儿藤 chang geng wa er teng

*Tylophora longipedicellata* Tsiang & P. T. Li; *T. renchangii* Tsiang.

Lianas to 3 m. Stems pale gray, longitudinally striate, pubescent along 1 side, glabrescent. Petiole 5–13 mm, pubescent; leaf blade elliptic-oblong or oblong-lanceolate, 4.5–8 × 2–3.5 cm, papery, sparsely pubescent along midvein, base cuneate or rounded, apex acute or short acuminate, rarely mucronate. Inflorescences shorter than leaves; peduncle 0.5–1.5 cm, glabrous or sparsely puberulent; cymules umbel-like to short racemelike, 1 or 2 separated by a very short rachis. Pedicel 1–2.8 cm. Sepals lanceolate, ca. 3 × 1 mm, villous; glands 5. Corolla greenish white, rotate; tube ca. 2 mm; lobes ovate-oblong, ca. 4 × 2 mm. Corona lobes inserted at base of anthers, circular to almost square, up to 1.5 mm wide and ± forming a cup as high as anthers, apex abruptly inflexed acuminate. Anther appendages rounded; pollinia cylindrical-ellipsoid, horizontal. Stigma head discoid. Follicles diverging at 180°, linear-lanceolate in outline, 4.5–6.5 cm × 8–10 mm, glabrous. Seeds oblong-ovate, ca. 4 × 2 mm; coma 1.5–2 cm. Fl. Apr-Aug, fr. Sep-Dec.

Open woods, along riversides or roadsides, thickets; to 500 m. Guangdong, Guangxi, Hainan [Vietnam].

The roots are used for the treatment of traumatic injury and fractures, and the leaves for viper bites.

The corona lobes of *Tylophora glabra* are almost as in *Heterostemma* and quite unlike any other *Tylophora* seen from mainland Asia. The inclusion of *T. longipedicellata* is somewhat tentative, and collections from Hainan, which otherwise match *T. glabra* extremely well, do not show the short corona lobes with the erect acuminate tip illustrated in the protologue.

