

22. AGAPETES D. Don ex G. Don, Gen. Hist. 3: 862. 1834.

树萝卜属 shu luo bo shu

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Caligula Klotzsch; *Corallobotrys* J. D. Hooker; *Desmogyne* King & Prain; *Pentapterygium* Klotzsch.

Shrubs evergreen, epiphytic, rarely terrestrial trees, usually with a swollen rootstock. Leaves spirally arranged, subopposite, or pseudoverticillate, subsessile or shortly petiolate, margin entire or serrate. Flowers axillary, in racemes, corymbs, or fascicles, or solitary. Pedicel articulate, sometimes expanded and forming a cup apically; bracteoles basal, small. Flowers 5-merous. Calyx sometimes 5-winged or -angled; limb 5-fid or deeply -lobed. Corolla red, rarely white or yellow, ± plain colored or with dark colored zig-zag horizontal bands, tubular, rarely globose, urceolate, or campanulate, often more than 1 cm, usually shortly 5-lobed. Stamens 10, ± as long as corolla; filaments short or long; anthers dorsally spurred or not, with 2 long tubules opening by apical pores or slits. Disk annular. Ovary inferior, many ovules per carpel, 10-pseudoloculed by false partitions; stigma small, truncate or capitate. Berry globose, succulent or nearly dry; calyx persistent. Seeds several; testa hard or mucilaginous.

About 80 species: from the E Himalayas through SW China and Indochina to SE Asia; 53 species (17 endemic) in China.

The majority of species of *Agapetes* is part of the same lineage as many SE Asian-Malesian species of *Vaccinium*. Species of *Agapetes* from New Guinea and the SW Pacific are now placed in *Paphia* Seemann.

There was no satisfactory way to include three of the Chinese species in the following key: for *Agapetes camelliifolia* (species no. 33) and *A. leiocarpa* (no. 29) no flowering material was seen, and in *A. malipoensis* (no. 44) the leaves are sometimes subopposite.

- 1a. Leaves pseudoverticillate.
 - 2a. Inflorescence with glandular hairs.
 - 3a. Leaves densely glandular hirsute; inflorescence corymbose 13. *A. ciliata*
 - 3b. Leaves glabrous; inflorescence shortly racemose or fasciculate.
 - 4a. Leaf blade obovate or oblong-lanceolate, 20–24 × 8–11 cm, with a distinct intramarginal vein; calyx lobes ca. 1 cm 2. *A. marginata*
 - 4b. Leaf blade narrowly elliptic, oblong-lanceolate, or oblanceolate, 8–11 × 3–6 cm, rigidly leathery, with an inconspicuous marginal vein; calyx lobes 3–5 mm 4. *A. aborensis*
 - 2b. Inflorescence glabrous.
 - 5a. Leaf blade ca. 10 × 0.8–2 cm; corolla 1.5–1.6 cm, lobes ca. 2.5 mm 12. *A. salicifolia*
 - 5b. Leaf blade to 25 cm; corolla 3–6 cm, lobes 4–11 mm.
 - 6a. Leaf blade oblong-lanceolate, 10–25 × 2–4.5 cm; corolla 4–6 cm, pinkish or rose, with dark purple transverse zig-zag bands, lobes ca. 1.1 cm 6. *A. burmanica*
 - 6b. Leaf blade elliptic-lanceolate, 12–18 × 4.5–8 cm; corolla ca. 3 cm, vermilion or crimson, lobes ca. 4 mm 10. *A. miniata*
- 1b. Leaves scattered.
 - 7a. Filaments longer than thecae; flowers solitary or 2–4(–6) in a fascicle, sometimes a corymb or raceme.
 - 8a. Leaf blade (3–)5–17 cm.
 - 9a. Inflorescences glabrous.
 - 10a. Leaf blade 10–17 cm; pedicel ca. 2.6 cm 9. *A. brandisiana*
 - 10b. Leaf blade 5–8 cm; pedicel 5–8 mm 11. *A. graciliflora*
 - 9b. Inflorescences variously pubescent and/or glandular hairy.
 - 11a. Inflorescence racemose, 5- or 6-flowered; pedicels 4–7 mm 42. *A. inopinata*
 - 11a. Inflorescence fasciculate, 1–4-flowered; pedicels 0.6–2 cm.
 - 12a. Branches pubescent and glandular setose; corolla crimson or carmine, tubular, 1.3–1.9 cm 43. *A. oblonga*
 - 12b. Branches glabrous; corolla green, shortly campanulate, 5–7 mm 41. *A. pilifera*
 - 8b. Leaf blade less than 2.5 cm.
 - 13a. Leaf margin crenulate or serrate.
 - 14a. Leaf blade ovate or elliptic, base obtuse or rounded.
 - 15a. Flowers solitary or 2 together from axils along branch; twigs rust-colored pilose; leaf margin crenulate-serrate 50. *A. anonyma*
 - 15b. Flowers 2–5 from subterminal leaf axils; twigs densely dark brown glandular setose; leaf margin serrate 52. *A. guangxiensis*
 - 14b. Leaf blade obovate or subelliptic, base cuneate.
 - 16a. Inflorescence shortly racemose; bract leaflike, 1.3–1.5 × ca. 1.1 cm, bracteoles oblong, 4–6 × ca. 2 mm 51. *A. rubrobracteata*
 - 16b. Flowers solitary, axillary; bracts and bracteoles less than 3 mm 53. *A. spissa*

- 13b. Leaf blade entire, recurved.
- 17a. Calyx densely puberulous or glabrous outside; pedicels 4–10 mm, glabrous.
- 18a. Corolla tubular, 1.1–1.5 cm, white or greenish white; stem densely puberulous 45. *A. mannii*
- 18b. Corolla campanulate, 6–7 mm, deep red; stem glabrous or hispid 46. *A. obovata*
- 17b. Calyx densely glandular villous or glandular setose and pubescent outside; pedicels 1–5 mm, glandular villous or glandular pubescent.
- 19a. Leaf blade hirsute abaxially 47. *A. pensilis*
- 19b. Leaf blade glabrous abaxially.
- 20a. Leaf apex abruptly narrowed into a long pungent mucro 48. *A. epacridea*
- 20b. Leaf apex rounded, apiculus minute 49. *A. brachypoda*
- 7b. Filaments shorter than thecae; inflorescence corymbose, rarely racemose or flowers fasciculate or solitary.
- 21a. Calyx tube 5-winged, lobes obvious; corolla usually 5-angled; peduncle to 10 mm.
- 22a. Corolla yellow.
- 23a. Leaf base rounded; pedicels and calyx pubescent; calyx lobes triangular-ovate, ca. 8 mm; anthers with 2 spurs 14. *A. flava*
- 23b. Leaf base shallowly cordate or obtuse; pedicel and calyx glabrous; calyx lobes suborbicular, ca. 3 mm; anthers without spurs 16. *A. listeri*
- 22b. Corolla reddish brown, purple, or white.
- 24a. Corolla 1.5–2 cm; inflorescence corymbose.
- 25a. Calyx lobes ca. 5 mm; corolla ca. 1.9 cm; leaf blade with serrate margin, adaxially very rugose 15. *A. incurvata*
- 25b. Calyx lobes ca. 10 mm; corolla ca. 1.5 cm; leaf blade with subentire margin, adaxially distinctly reticulate 17. *A. medogensis*
- 24b. Corolla 2–3.4 cm; inflorescence shortly racemose.
- 26a. Leaf blade oblanceolate to obovate, apex acuminate to acute; calyx lobes 9–13 mm; stem puberulous 18. *A. pyrolifolia*
- 26b. Leaf blade elliptic, apex acute or apiculate; calyx lobes 6–9(–10) mm; stem hirtellous or glandular setose 19. *A. interdicta*
- 21b. Calyx and corolla not winged or angled; peduncle usually elongate.
- 27a. Leaf blade more than (4–)6 cm.
- 28a. Leaf blade less than 1.5 cm wide, linear or linear-lanceolate.
- 29a. Leaf margin shallowly and remotely undulate-denticulate towards apex; corolla ca. 2.2 cm, crimson or carmine; pedicel enlarged into a disk apically 26. *A. nutans*
- 29b. Leaf margin entire; corolla 1.3–1.4 cm, green, glaucescent; pedicel enlarged into a cup apically 27. *A. linearifolia*
- 28b. Leaf blade more than 1.5 cm wide, oblong or ovate-lanceolate.
- 30a. Corolla lobed nearly to middle 1. *A. lobbii*
- 30b. Corolla lobed less than 1/4 its length.
- 31a. Leaf blade 28–34 × 7–13.5 cm 8. *A. macrophylla*
- 31b. Leaf blade to 17(–22) × (1–)2–10 cm.
- 32a. Pedicel at most clavate towards apex; leaf margin usually at least inconspicuously toothed, except *A. megacarpa*.
- 33a. Pedicel and calyx pubescent; leaf blade 3–10 cm wide, with very distinct intramarginal veins 3. *A. pubiflora*
- 33b. Pedicel and calyx glabrous; leaf blade less than 4 cm wide, lacking distinct intramarginal vein.
- 34a. Calyx lobes less than 3 mm; twigs strongly angled 7. *A. angulata*
- 34b. Calyx lobes 4–8 mm; twigs terete or weakly angled.
- 35a. Corolla creamy yellow; anthers with spurs 5. *A. megacarpa*
- 35b. Corolla red or purple; anthers lacking spurs.
- 36a. Leaf blade oblong-lanceolate, 10–21 × 2–4.5 cm; petiole ca. 1 cm; corolla ca. 1.7 cm, bluish purple 24. *A. xizangensis*
- 36b. Leaf blade ovate-oblong or broadly elliptic, 7.5–14 × 3–5.5 cm, subsessile; corolla ca. 2.5 cm, red 25. *A. subsessilifolia*
- 32b. Pedicel enlarged into a cup apically; leaf margin entire.
- 37a. Calyx limb entire, expanded; corolla ca. 4.5 cm or more 20. *A. neriifolia*
- 37b. Calyx limb 5-lobed; corolla 2–3 cm.
- 38a. Calyx limb divided to 2/3 length 21. *A. pseudogriffithii*
- 38b. Calyx limb divided to base.
- 39a. Leaf blade oblong, 8–15 × 2–5 cm, base cuneate; calyx lobes ovate; corolla ± tubular, strongly 5-angled 22. *A. griffithii*
- 39b. Leaf blade ovate-lanceolate, 7–12.5 × 1.5–3.2 cm, base rounded; calyx lobes narrowly triangular; corolla narrowly funnellform, ca. 2 cm, not angled 23. *A. hyalocheilos*

- 27b. Leaf blade less than 6 cm.
- 40a. Inflorescence corymbose; leaf apex acuminate or caudate; twigs glabrous or pubescent, rarely setose.
- 41a. Leaf margin entire; inflorescence 2- or 3-flowered; calyx lobes ca. 3 mm 31. *A. leucocarpa*
- 41b. Leaf margin serrate; inflorescence 4–8-flowered; calyx lobes ca. 1.5 mm or more than 5 mm.
- 42a. Pedicel clavate towards apex; calyx lobes ca. 1.5 mm; twigs densely setose 30. *A. forrestii*
- 42b. Pedicel forming a cup apically; calyx lobes 5–6 mm; twigs glabrous or pubescent 28. *A. discolor*
- 40b. Flowers solitary, or 2 or 3, rarely 3–8, subfasciculate; leaf apex acute, obtuse, or apiculate; twigs setose or hispidulous.
- 43a. Corolla urceolate, 5–8 mm, 5-winged or 5-angled.
- 44a. Flowers 1 or 2; corolla with ca. 2 mm wide wings, lemon-yellow 39. *A. miranda*
- 44b. Flowers 3–8, subfasciculate; corolla strongly 5-angled, cherry-red 40. *A. praestigiosa*
- 43b. Corolla tubular or cylindric, (1.2–)2–3 cm, not angled or winged.
- 45a. Calyx tube 5-winged; pedicel along with calyx wings glandular setose; leaves often appearing to be in two ranks 37. *A. serpens*
- 45b. Calyx tube at most angled; pedicel and calyx glabrous to pubescent, rarely with glandular hairs; leaves not 2-ranked.
- 46a. Inflorescence with peduncle ca. 1.5 cm; corolla puberulous along angles, lobes 4–6 mm 34. *A. mitrarioides*
- 46b. Inflorescence fasciculate or flowers solitary; corolla glabrous outside, lobes at least 4–6 mm.
- 47a. Pedicels and calyx densely pubescent or glandular pubescent or villous.
- 48a. Leaf blade elliptic to obovate, 1.5–2.8 cm; corolla lobes 4–6 mm 32. *A. buxifolia*
- 48b. Leaf blade elliptic, 0.7–2 cm; corolla lobes ca. 3 mm 36. *A. lacei*
- 47b. Pedicels and calyx tube glabrous.
- 49a. Pedicels ca. 1 cm 38. *A. praeclara*
- 49b. Pedicels 1.5–2.5 cm; corolla lobes 7–8.5 mm.
- 50a. Leaf blade ovate; corolla 1.6–1.8 cm 35. *A. refracta*
- 50b. Leaf blade elliptic; corolla 2–3 cm 36. *A. lacei*

1. *Agapetes lobbii* C. B. Clarke in J. D. Hooker, Fl. Brit. India 3: 448. 1881.

深裂树萝卜 shen lie shu luo bo

Agapetes corallina Cowan; *A. stenantha* Rehder.

Shrubs 1–2 m tall, glabrous. Twigs terete, 1.2–2.5 mm in diam. Leaves scattered; petiole 3–5 mm; leaf blade ovate-lanceolate or lanceolate, 4–11 × 2–3.5 cm, leathery, secondary veins 5–7 pairs, barely evident, base cuneate or broadly cuneate, margin plane, entire, with 1 basal gland per side, apex caudate-acuminate. Inflorescences racemose, 3–8 cm, many flowered; peduncle 0.6–1.3 cm. Pedicel 0.5–1.5 cm, somewhat expanded apically. Calyx tube subglobose, ca. 2 mm; limb divided to base; lobes triangular-lanceolate, 3–4 mm. Corolla crimson, narrowly campanulate, 2–2.5 cm; lobes erect or recurved, lorate, ca. 1.2 cm. Filaments 3–4(–8) mm, papillate; anthers ca. 2(–2.4) cm, thecae papillate, with minute spurs or not; tubules ca. (1–)2 × as long as thecae. Berry unknown. Fl. Dec–Jun of next year.

Forests, epiphytic on trees, rocks; 1300–1400 m. S Yunnan [NE India (Assam), Myanmar, Thailand].

2. *Agapetes marginata* Dunn, Bull. Misc. Inform. Kew 1920: 133. 1920.

边脉树萝卜 bian mai shu luo bo

Shrubs. Root tubers spindle-shaped, ca. 30 × 18 cm. Twigs terete. Leaves pseudoverticillate; petiole very short or leaves sessile; leaf blade obovate or oblong-lanceolate, 20–24 × 8–11 cm, leathery, glabrous, secondary veins 20–22 pairs, marginal vein distinct, drying prominently abaxially, base gradually narrowed to rounded, margin plane or slightly revolute, with 2

or 3 basal glands per side, subtire, apex shortly acuminate. Inflorescences corymbose-racemose, ramiflorous, ca. 9 cm, 5–7-flowered; peduncle 1.5–2 cm. Pedicel 2.5–3 cm, densely glandular setose, slightly expanded towards apex. Calyx tube ca. 2 mm, densely glandular setose; limb divided to base; lobes lanceolate, ca. 1 cm. Corolla red, tubular, slightly expanded at middle, 3.2–3.8 cm, setulose, especially towards apex; lobes lanceolate-triangular, ca. 6 mm. Filaments ca. 2 mm, glabrous; anthers ca. 2.9 cm, thecae papillate, tubules ca. 3.5 × as long as thecae. Berry unknown. Fl. Mar–Jun.

• Rain forests, *Quercus* forests, epiphytic on trees; 800–1700 m. S Xizang.

3. *Agapetes pubiflora* Airy Shaw, Bull. Misc. Inform. Kew 1935: 27. 1935.

毛花树萝卜 mao hua shu luo bo

Shrubs 1.5–3 m tall. Twigs angled, ca. 5 mm in diam., glabrous. Leaves scattered; petiole dark red, 5–10 mm; leaf blade oblong-elliptic, elliptic, or elliptic-lanceolate, 9–22 × 3–10 cm, thickly leathery, glabrous, secondary veins 15–18 pairs, raised abaxially, flat adaxially, marginal vein distinct, base cuneate or broadly cuneate, margin plane, sparsely dentate, with 1 large basal gland per side, apex acute or shortly acuminate. Inflorescence corymbose-racemose, cauliflorous, ca. 1.3 cm, ca. 9-flowered; peduncle 5–7 mm, pubescent. Pedicel red, 1–2.5 cm, puberulous, slightly expanded at apex. Calyx tube 1.5–2 mm, puberulous; limb divided to 3/4; lobes pink, triangular-lanceolate, 2.5–3.5 mm. Corolla pink, with dark red zig-zag bands, tubular, 2.5–3 cm, densely puberulous, 5-angled; lobes recurved, green, triangular-lanceolate, 4–5 mm. Filaments 1.5–2 mm, pubescent; anthers ca. 2.5 cm; thecae densely papillate, base

puberulous, tubules ca. $4 \times$ as long as thecae, with 2 reflexed spurs ca. 1.5 mm. Berry unknown. Fl. Jun–Nov.

Rain forests, evergreen forests, epiphytic on large trees; (900–)1200–1600 m. SE Xizang, NW Yunnan [Myanmar].

4. *Agapetes aborensis* Airy Shaw, Kew Bull. 14: 111. 1960.

阿波树萝卜 a bo shu luo bo

Shrubs 0.3–0.4 m tall. Twigs angled, 3–5 mm in diam., glabrous. Leaves pseudoverticillate; petiole very short or leaves subsessile; leaf blade narrowly elliptic or oblanceolate, 8–11 \times 2–3.6 cm, rigidly leathery, glabrous, marginal vein distinct, fine veins raised on both surfaces, base cuneate, margin entire, apex acute. Inflorescences racemose, ca. 1 cm, 2–8-flowered; peduncle densely brown glandular hispidulous. Pedicel 5–6 mm, glandular hispidulous. Calyx tube 1–1.5 mm, glandular hispidulous; limb divided to base; lobes lanceolate-subulate, 3–5 mm. Corolla dark red, tubular, 1.6–1.8 cm, 5-angled, glabrous or sparsely setulose on angle; lobes ovate, ca. 1 mm. Filaments ca. 2 mm, glabrous; anthers ca. 1.4 cm, thecae papillate, base shortly caudate, tubules nearly $2 \times$ as long as thecae, with 2 minute spurs towards apex. Berry unknown. Fl. Jan–Feb.

• Forests, epiphytic on trees; 400–700 m. SE Xizang.

5. *Agapetes megacarpa* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 11: 194. 1919.

大果树萝卜 da guo shu luo bo

Shrubs to 6 m tall, glabrous. Leaves scattered; petiole very short or leaves subsessile; leaf blade lanceolate or oblong-lanceolate, 10–17 \times 2–4 cm, papery, base cuneate to obtuse, margin entire, apex acute or shortly acuminate. Inflorescence axillary or terminal, corymbose-racemose, 7–8 cm, few flowered; peduncle ca. 1 cm, stout. Pedicel 2.2–2.3 cm, slightly expanded upwards. Calyx tube turbinate, ca. 3 mm; limb divided to base; lobes subulate, 7–8 mm. Corolla creamy yellow, with dark bands, infundibular, ca. 4.5 cm; lobes narrowly triangular, 9–10 mm. Filaments ca. 3 mm, shortly pilose basally; anthers 4–7.5 cm, thecae densely papillate, base with incurved incrassate appendage; tubules ca. $5 \times$ as long as thecae, with 2 spreading ca. 1 mm spurs at middle. Berry globose, ca. 1 cm in diam.; persistent calyx lobes 9–10 mm. Fl. Apr.

Forests, open thickets, epiphytic on trees; ca. 2100 m. S Yunnan [Thailand].

6. *Agapetes burmanica* W. E. Evans, Notes Roy. Bot. Gard. Edinburgh 15: 199. 1927.

缅甸树萝卜 mian dian shu luo bo

Shrubs 1.5–3(–4) m tall, glabrous. Root tubers conoid or spherical. Twigs not angled, 4–10 mm in diam. Leaves pseudoverticillate; petiole 2–3 mm or leaves subsessile; leaf blade oblong-lanceolate, 10–25 \times 2–4.5 cm, leathery, secondary veins 14–16 pairs, evident, marginal vein distinct, base obtuse to rounded, margin plane, inconspicuously and distantly sinuous. Inflorescences racemose, on old stem, few flowered; peduncle 0.5–1.5 cm. Pedicel 2.5–3 cm, expanded upwards, clavate. Calyx tube inconspicuously angled, 3–5 mm; limb divided ca. 9/10; lobes narrowly triangular, ca. 1 cm. Corolla pinkish or

rose, with dark purple transverse zig-zag bands, tubular, 4.5–6 cm; lobes spreading, greenish, narrowly triangular, ca. 1.1 mm. Filaments ca. 2 mm, pubescent; anthers 4.5–4.8 cm, thecae densely papillate and puberulous, tubules 4–5 \times as long as thecae, with 2 spreading ca. 1 mm spurs at middle. Berry large. Fl. Sep–Dec, fr. Nov–Jan of next year.

Sparse forests or thickets on calcareous mountains, epiphytic on trees; 700–1500 m. SE Xizang, S Yunnan [Myanmar].

7. *Agapetes angulata* (Griffith) J. D. Hooker in Bentham & J. D. Hooker, Gen. Pl. 2: 571. 1876.

棱枝树萝卜 leng zhi shu luo bo

Cerastostema angulatum Griffith, Not. Pl. Asiat. 4: 302. 1854.

Shrubs 0.8–1.3 m tall, glabrous. Twigs angled, 4–5 mm in diam., becoming lenticellate. Leaves scattered; petiole 0.5–1 cm; leaf blade lanceolate or elliptic-lanceolate, 12–14 \times 3.5–4 cm, thinly papery, secondary veins 8 or 9 pairs, raised abaxially, base cuneate, margin sparsely serrulate, apex acuminate. Inflorescences corymbose to subumbellate, 2.5–4 cm, 5–15-flowered; rachis 0.4–1.5 cm. Pedicel 0.9–2.2 cm, slender, expanded at apex. Calyx tube obpyramidal, 1.5–1.7 mm, slightly 5-angled; limb 1.6–2.5 mm, divided ca. 4/5; lobes triangular, 1.2–2.3 mm. Corolla red to reddish yellow, with deep colored zig-zag bands, 1.5–2.7 cm, rather thinly fleshy; lobes green, triangular, 3.5–6 mm. Filaments 1–2 mm, with sparse hairs; anthers ca. 2.6 cm, thecae rounded to acute, somewhat downward-pointing at base, papillate, tubules ca. $4 \times$ as long as thecae, spurs absent. Fl. Feb–Mar, fr. May.

Forests, epiphytic on trees; (700–)1200–1500 m. SE Xizang, NW Yunnan (Dulongjiang) [NE India (Assam), Myanmar].

8. *Agapetes macrophylla* C. B. Clarke in J. D. Hooker, Fl. Brit. India 3: 445. 1881.

大叶树萝卜 da ye shu luo bo

Shrubs glabrous. Twigs terete, 4–8 mm in diam. Leaves scattered; petiole ca. 1.3 cm; leaf blade ovate or oblong-lanceolate, 28–34 \times 7–13.5 cm, secondary veins 16–18 pairs, midvein and fine veins raised on both surfaces, base broadly cuneate or rounded, margin plane, sparsely inconspicuously dentate, apex acuminate. Inflorescences corymbose, 8–9 cm, 8–10-flowered; peduncle 1–5 cm; bracts linear-lanceolate, ca. 6 mm. Pedicel 1.3–3.8 cm, swollen towards apex. Calyx tube turbinate, ca. 2 cm; limb divided ca. 2/3; lobes lanceolate, ca. 8 mm. Corolla red, with zig-zag bands, tubular, ca. 2.5 cm, 5-angled; lobes triangular, 3–4 mm. Filaments ca. 3 mm, pubescent; anthers ca. 2.2 cm, thecae with a basal beak, tubules ca. $2 \times$ as long as thecae, spurs minute or absent. Berry unknown. Fl. Apr.

Rain forests, epiphytic on trees; ca. 1800 m. SE Xizang [Bangladesh].

9. *Agapetes brandisiana* W. E. Evans, Notes Roy. Bot. Gard. Edinburgh 15: 201. 1927.

环萼树萝卜 huan e shu luo bo

Shrubs glabrous. Roots spindle-shaped. Twigs angled, 5–8

mm in diam. Leaves scattered, subsessile; leaf blade narrowly oblong, 10–17 × 2.5–3.8 cm, leathery, secondary veins ca. 12 pairs, raised, base narrowly rounded, margin plane, entire, with 1 basal gland per side, apex acuminate. Inflorescences corymbose, inserted on mature stem, 3–4 cm, 3–5-flowered; peduncle ca. 1 cm. Pedicel 1–1.5 cm, conspicuously cupular at apex. Calyx tube shortly tubular, ca. 5 mm, swollen at middle; limb divided ca. 1/2; lobes triangular-lanceolate, ca. 3 mm. Corolla red, with zig-zag bands, tubular, 2.2–2.6 cm, not angled; lobes recurved, triangular, 5–6 mm; filaments 6–7 mm, base adnate to corolla tube, apex pubescent; anthers 2.2–2.6 cm, thecae papillate, tubules ca. 3.5 × as long as thecae, without spurs. Berry globose, ca. 4 mm in diam. Fr. Feb–Apr.

Rain forests, epiphytic on old trees; 1500–1800 m. SW Yunnan [N Myanmar (Kachin)].

10. *Agapetes miniata* (Griffith) J. D. Hooker in Bentham & J. D. Hooker, Gen. Pl. 2: 571. 1876.

朱红树萝卜 zhu hong shu luo bo

Ceratostema miniatum Griffith, Not. Pl. Asiat. 4: 302. 1854; *Vaccinium miniatum* (Griffith) Kurz.

Shrubs glabrous. Twigs terete, 2.5–4 mm in diam. Leaves ca. 4-pseudovercillate, subsessile or petiole ca. 4 mm; leaf blade elliptic-lanceolate, 12–18 × 4.5–8 cm, leathery, secondary veins 11–13 pairs, raised abaxially, flat adaxially, base cuneate to obtuse, margin plane, sparsely serrulate, apex acute. Inflorescences corymbose, 0.7–1 cm, ca. 7-flowered; peduncle 3–5 mm. Pedicel 0.6–2.5 cm. Calyx obconical, 2.5–3 mm; lobes triangular-lanceolate, 4–5 mm. Corolla vermilion or crimson, tubular, ca. 3 mm; lobes triangular, ca. 1.5 mm. Filaments 2–2.5 mm, glabrous; anthers ca. 1.6 cm, thecae densely papillate, tubules slightly longer than thecae, without spurs. Berry unknown. Fl. Mar–Apr.

Forests, epiphytic on trees; 1000–1800 m. SE Xizang [NE India (Assam)].

11. *Agapetes graciliflora* R. C. Fang, **nom. nov.**

细花树萝卜 xi hua shu luo bo

Replaced synonym: *Agapetes leptantha* Airy Shaw, Kew Bull. 13: 483. 1959, not *A. leptantha* (Miquel) Niedenzu, Bot. Jahrb. Syst. 11: 201. 1890.

Shrubs glabrous. Twigs elongate, flexuous, terete, ca. 3 mm in diam. Leaves scattered; petiole ca. 1 cm, slender, narrowly alate on both sides; leaf blade greenish or inconspicuously brown and opaque abaxially, drying blackish and nitid adaxially, oblong-elliptic or oblong-lanceolate, 5–8 × ca. 2 cm, papery, base attenuate, decurrent, margin plane, remotely serrulate, apex acuminate. Inflorescences racemose, 1–4 cm, slender, 15–20-flowered; peduncle 7–10 mm. Pedicel 5–8 mm, slender, shallowly cup-shaped apically. Calyx tube subglobose, ca. 1 mm; limb divided to base; lobes spreading, triangular, minute, ca. 1 mm. Corolla greenish, tinged with red, narrowly tubular, 1.1–1.3 cm; lobes recurved, ovate-triangular, 1–1.5 mm. Filaments 6–7 mm, slender, puberulous; anthers 5–6 mm, thecae papillate, base shortly caudate, tubules ca. 2.5 × as long

as thecae, without spurs. Berry unknown. Fl. Nov.

Forests, epiphytic on trees; ca. 900 m. SE Xizang [Myanmar].

12. *Agapetes salicifolia* C. B. Clarke in J. D. Hooker, Fl. Brit. India 3: 445. 1881.

柳叶树萝卜 liu ye shu luo bo

Shrubs glabrous. Twigs scarcely angled, ca. 3 mm in diam. Leaves pseudoverticillate, sessile; leaf blade narrowly lanceolate or very narrowly oblong-oblong-lanceolate, 9.5–10 × 1–2 cm, leathery, base attenuate, margin with a basal gland, entire or inconspicuously dentate-crenate, apex subacuminate. Inflorescence vermilion, corymbose, on old wood, ca. 3 cm, ca. 12-flowered; peduncle ?ca. 6 mm. Pedicel 3–6 mm, not expanded. Calyx tube vermilion; limb divided to base; lobes triangular, 2.5–3 mm, apex acute. Corolla crimson, tubular, ca. 1.6 cm; lobes green, triangular, ca. 2.5 mm. Berry unknown.

• Forests, epiphytic on trees; ca. 1500 m. SE Xizang.

13. *Agapetes ciliata* S. H. Huang, Acta Phytotax. Sin. 25: 314. 1987.

纤毛叶树萝卜 xian mao ye shu luo bo

Shrubs 0.5–1.5 m tall. Twigs terete, 0.9–1 cm in diam., densely dark or yellow-brown glandular hirsute. Leaves borne towards ends of innovations; petiole ca. 3 mm, glandular hirsute or leaves subsessile; leaf blade oblong-elliptic, 15–27 × 5.5–14 cm, leathery, abaxially densely hirsute or on veins glandular hirsute, adaxially glabrous, secondary veins 6–8 pairs, secondary and fine veins raised abaxially, impressed and subbullate adaxially, base attenuate to cuneate or subauriculate, margin plane, subentire, with 1 basal gland per side, densely glandular hirsute, apex acute. Inflorescences ± fasciculate, cauliflorous, 6–9-flowered; rachis ca. 0.5 cm. Pedicel 1.7–2.5 cm, clavate, densely glandular pubescent. Calyx densely reddish appanate glandular pilose; tube ca. 3.5 mm; limb divided ca. 2/3; lobes red, lanceolate, ca. 4 mm, glandular. Corolla red, with dark purple zig-zag bands, tubular, 2–2.5 cm, glandular pubescent; lobes greenish, triangular, ca. 2 mm. Filaments ca. 2.5 mm, pilose on the edges; anthers ca. 2.1 cm, thecae densely papillate, tubules ca. 3 × as long as thecae, without spurs. Berry reddish, ellipsoidal, ca. 6.5 × 5 mm, densely brown glandular hirsute. Fl. Apr–Dec.

• Evergreen forests, epiphytic on trees; 1600–2200 m. SE Xizang (Médog).

14. *Agapetes flava* (J. D. Hooker) Sleumer, Bot. Jahrb. Syst. 70: 105. 1939.

黄花树萝卜 huang hua shu luo bo

Pentapterygium flavum J. D. Hooker, Bot. Mag. 82: t. 4910. 1856.

Shrubs. Twigs terete, glabrous or pubescent towards apices. Leaves scattered; petiole 3–4 mm; leaf blade ovate or elliptic, 5–9 × ca. 3.4 cm, leathery, abaxially silky-hairy on midvein, adaxially rugose with fine veins, glabrous, base rounded, margin serrate, apex acute. Inflorescences corymbose, pen-

dulous or nodding. Pedicel red, ca. 2 cm, pubescent, expanded upwards. Calyx tube yellowish, rounded, 5-winged; lobes triangular-ovate, ca. 8 mm, striate, pubescent. Corolla yellow, tubular, ca. 1.7 cm, inflated at middle, angled, puberulous; lobes recurved, small. Filaments pubescent; anthers with tubules ca. $3.5 \times$ as long as thecae, with 2 spurs. Berry ca. 8 mm in diam.

Forests, epiphytic on trees; 1200–1500 m. SE Xizang [NE India].

The above description follows that in the protologue.

15. *Agapetes incurvata* (Griffith) Sleumer, Bot. Jahrb. Syst. 70: 105. 1939.

皱叶树萝卜 zhou ye shu luo bo

Gaylussacia incurvata Griffith, Ic. Pl. Asiat. 4: t. 506. 1854; *Pentapterygium rugosum* (J. D. Hooker & Thomson ex Hooker) J. D. Hooker; *Vaccinium rugosum* J. D. Hooker & Thomson ex Hooker.

Shrubs. Twigs rounded, 2–3 mm in diam., hirsute towards apices, lenticellate. Leaves scattered, but towards end of insertion subsessile; leaf blade ovate-lanceolate or oblong, 5–10 \times 2–3 cm, leathery, abaxially glabrous or pubescent, adaxially very rugose with impressed veins, pubescent, secondary veins 10–15 pairs, strongly raised abaxially, impressed adaxially, base obtuse or rounded, margin revolute, serrate, apex acuminate. Inflorescences corymbose, pendulous, 2- or 3-flowered; peduncle 3–10 mm. Pedicel deep red basally, ca. 3 mm, barely expanded. Calyx tube 1.8–3.8 mm, 5-angled, sparsely pubescent; limb divided ca. $2/3$; lobes ovate-triangular, 5–6 mm. Corolla white, green, or deep red to purple, with purple or blood-red zig-zag bands, tubular, ca. 1.9 cm, strongly 5-angled, glabrous or pubescent on wings; lobes triangular. Filaments ca. 3 mm, puberulous; anthers ca. 1.6 cm, thecae papillate, tubules ca. $3 \times$ as long as thecae, with minute spurs. Berry broadly hemispheric, ca. 8 mm or more, 5-ribbed; persistent calyx lobes to 1.2 cm. Fl. May–Jun.

Tsuga-Rhododendron forests, epiphytic on large trees; 1200–2400 m. SE Xizang (Dirangzong) [Bangladesh, Bhutan, NE India (Assam, Khasi hills), E Nepal, Sikkim].

16. *Agapetes listeri* (King ex C. B. Clarke) Sleumer, Bot. Jahrb. Syst. 70: 105. 1939.

短锥花树萝卜 duan zhui hua shu luo bo

Pentapterygium listeri King ex C. B. Clarke in J. D. Hooker, Fl. Brit. India 3: 450. 1882.

Shrubs. Twigs angled towards apices, glabrous or minutely puberulous. Leaves scattered, subsessile; leaf blade oblong-elliptic, 4–8 \times 2–3 cm, leathery, glabrous, secondary veins slightly raised adaxially, base obtuse or shallowly cordate, margin subentire, apex acute. Inflorescences corymbose, 2- or 3-flowered; peduncle 3–4 mm. Pedicel ca. 6 mm, glabrous, ?expanded. Calyx tube conical, ca. 3 mm, 5-winged, glabrous; lobes suborbicular, ca. 3 mm, sometimes minutely apiculate. Corolla yellow, urceolate-cylindric, 1.4–1.5 cm, glabrous; lobes erect, ovate-triangular, ca. 2 mm. Filaments ca. 1 mm, glabrous; anthers ca. 1.2 cm, thecae papillate, shortly caudate at base; tu-

bules ca. $2 \times$ as long as thecae, without spurs. Berry unknown. Fl. May–Oct.

Upper temperate rain forests, epiphytic on trees; (2100–)2400–2700 m. SE Xizang [?Bhutan, NE India (Assam)].

17. *Agapetes medogensis* S. H. Huang, Acta Phytotax. Sin. 25: 315. 1987.

墨脱树萝卜 mo tuo shu luo bo

Shrubs 30–40 cm tall. Twigs terete, angled, 2–3 mm in diam., glabrous, becoming lenticellate. Leaves scattered; petiole 1–2 mm, glabrous; leaf blade oblong-elliptic, 3.5–7.5 \times 1.2–3.2 cm, leathery, glabrous, secondary veins 8–11 pairs, conspicuously raised adaxially, base cuneate to obtuse, margin plane, subentire, with 1 basal gland per side, apex acute. Inflorescences corymbose, from defoliate axils, 1–3-flowered; peduncle 4–5 mm, subglabrous. Pedicel ca. 8 mm, densely pubescent and with sparse glandular hairs, slightly expanded at apex. Calyx tube brownish red, 4–5 mm, broadly 5-winged, sparsely puberulous; limb red, divided ca. $2/3$; lobes ovate-triangular, ca. 10 mm, sparsely puberulous. Corolla reddish brown, with dark red zig-zag bands, tubular, ca. 1.5 cm, glabrous; lobes linear-lanceolate, ca. 4 mm. Filaments ca. 1 mm, glabrous; anthers ca. 1.2 cm, thecae papillate, shortly caudate at base; tubules ca. $3 \times$ as long as thecae, without spurs. Berry ellipsoidal, ca. 1 \times 0.8 cm, with 5 broad wings. Fl. Jan–Apr.

• Evergreen forests, epiphytic on trees; 1700–2200 m. SE Xizang (Médog).

18. *Agapetes pyrolifolia* Airy Shaw, Kew Bull. 13: 487. 1959.

鹿蹄草叶树萝卜 lu ti cao ye shu luo bo

Shrubs 60–80 cm tall. Twigs terete or inconspicuously bluntly angled, 1.5–3 mm in diam., puberulous when young. Leaves scattered; petiole 1–2 mm, glabrous; leaf blade oblanceolate to obovate, 1.5–3.5(–5) \times 0.8–2(–2.5) cm, leathery, glabrous, secondary veins 8 or 9 pairs, base cuneate, margin plane, entire or sparsely serrate near apex, apex acute to rounded, mucronate or apiculate. Inflorescences shortly racemose, 1–3-flowered; peduncle 2–6 mm. Pedicel 7–11 mm, densely puberulous, rarely glabrous, slightly expanded at apex. Calyx glabrous or sparsely pubescent; tube ca. 4 mm, conspicuously 5-winged; limb divided ca. $3/4$; lobes ovate-triangular, 9–13 mm, submembranous, apex acuminate-acute. Corolla with carmine zig-zag bands, tubular, 2–3 cm, 5-angled, glabrous; lobes recurved at apex, greenish, narrowly triangular, 6–8 mm, apex greenish, acuminate. Filaments 3–4 mm, puberulous; anthers 2.4–2.7 cm, thecae papillate, caudate at base, tubules ca. $4 \times$ as long as thecae, without spurs. Immature berry ca. 9 mm in diam. Fl. Mar–May, fr. Sep–Oct.

Evergreen forests, epiphytic on trees, rarely in *Rhododendron* forests or alpine thickets; 1800–2700(–3200) m. SE Xizang, NW Yunnan (Dulongjiang) [Myanmar].

19. *Agapetes interdicta* (Handel-Mazzetti) Sleumer, Bot. Jahrb. Syst. 70: 106. 1939.

中型树萝卜 zhong xing shu luo bo

Pentapterygium interdictum Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 60: 186. 1923; *Agapetes interdicta* var. *stenoloba* (W. E. Evans) Sleumer; *P. interdictum* var. *stenolobum* W. E. Evans.

Shrubs 30–60 cm tall. Twigs sharply angled, 1–3 mm in diam., hirtellous or glandular setose. Leaves scattered; petiole 1–2 mm, glabrous; leaf blade elliptic, 2–4.5 × 0.8–2.3 cm, leathery, glabrous, secondary veins 8 or 9 pairs, base cuneate, margin slightly revolute, entire or only sparsely serrate near apex, apex acute or apiculate. Inflorescences racemose, 1–3(–7)-flowered; peduncle 4–7 mm. Pedicel 4–10(–13) mm, densely puberulous, sometimes intermixed scattered shortly glandular setose, apex slightly expanded. Calyx glabrous or sparsely pubescent; tube 3–4 mm, conspicuously 5-winged, sparsely pubescent; limb divided ca. 2/3; lobes narrowly ovate-triangular, 6–9(–10) mm, submembranous, apex acuminate. Corolla red, tubular, 2.2–3(–3.4) cm, 5-angled; lobes recurved, greenish, triangular-subulate, 6–9 mm. Filaments 4–5 mm, glabrous; anthers 2.2–2.6(–3.2) cm, thecae caudate at base, tubules (2–)4 × as long as thecae, without spurs. Berry unknown. Fl. Mar, fr. Aug.

Evergreen forests, epiphytic on trees; 2300–2700(–2900) m. SE Xizang, NW Yunnan (Dulongjiang) [Myanmar].

20. *Agapetes neriifolia* (King & Prain) Airy Shaw, Bull. Misc. Inform. Kew 1935: 39. 1935.

夹竹桃叶树萝卜 jia zhu tao ye shu luo bo

Desmogyne neriifolia King & Prain, J. Asiat. Soc. Bengal 67(2): 297. 1898.

Shrubs glabrous. Twigs inconspicuously angled, 1.5–5 mm in diam. Leaves scattered; petiole 1–2 mm; leaf blade drying grayish on both surfaces, oblong-lanceolate, 5–10(–15) × 1.5–2 cm, leathery, secondary veins inconspicuous on both surfaces, base rounded, margin revolute, entire, with 1 ± conspicuous basal gland per side, apex long acuminate. Inflorescences corymbose, 1.5–2.5 cm, 5–10-flowered. Pedicel 1.5–3 cm, enlarged into a cup apically. Calyx crimson, broadly campanulate; tube obconical, ca. 2 mm; limb inflated, ca. 1.5 cm wide, undivided. Corolla dull crimson with a bluish bloom, with dark zig-zag bands, tubular, ca. 4 cm; lobes triangular, ca. 2 mm. Filaments ca. 3 mm, glabrous; anthers ca. 3.3 cm, thecae papillate, tubules ca. 4.5 × as long as thecae, without spurs. Fl. Mar–Sep.

Forests, epiphytic on trees; ca. 1200 m. SW Yunnan [Myanmar].

21. *Agapetes pseudogriffithii* Airy Shaw, Bull. Misc. Inform. Kew 1935: 40. 1935.

杯梗树萝卜 bei geng shu luo bo

Shrubs 0.4–1(–2) m tall, glabrous. Root tuber spindle-shaped. Twigs terete, 1–2.5 mm in diam. Leaves scattered; petiole 3–7 mm; leaf blade oblong-lanceolate or ovate-lanceolate, 6–14 × 1.5–3.5 cm, leathery, secondary veins inconspicuous on both surfaces, base rounded or broadly cuneate, margin plane or slightly revolute, entire, basal glands inconspicuous, apex long acuminate. Inflorescences red, corymbose, 1.5–5 cm, slender, 3–7-flowered. Pedicel red, 1–2 cm, stout, fleshy, cup-shaped

apically. Calyx ca. 1 cm, glabrous; limb divided ca. 2/3; lobes ovate-triangular, ca. 6 mm. Corolla pinkish, crimson, carmine, or orange, tubular, 2–3 cm; lobes erect, green, triangular, ca. 2 mm. Filaments 3–4 mm, subglabrous; anthers ca. 2.1 cm, thecae papillate, tubules ca. 3 × as long as thecae, without spurs. Berry shortly cylindric, 7–12 × 5–9 mm. Fl. Nov–Jan of next year, fr. Mar–May.

Evergreen forests, epiphytic on trees; 1300–1500 m. NW Yunnan (Dulongjiang) [Myanmar].

22. *Agapetes griffithii* C. B. Clarke in J. D. Hooker, Fl. Brit. India 3: 449. 1882.

尾叶树萝卜 wei ye shu luo bo

Shrubs climbing, glabrous. Twigs terete. Leaves scattered; petiole ca. 5 mm; leaf blade oblong, 8–15 × 2–5 cm, papery to thinly leathery, base cuneate, margin entire, apex acuminate to abruptly and shortly caudate. Inflorescences corymbose, 3–4 cm, 2–4-flowered. Pedicel 1.5–2.5 cm, enlarged apically. Calyx tube ca. 2.5 × 3 mm, not angled; limb divided to base; lobes ovate, 3–5 mm, apex acute. Corolla reddish, with dark violet zig-zag bands, ± tubular, ca. 2.5 cm; lobes green, ca. 4 mm. Filaments ca. 8 mm, hairy in upper part; anthers ca. 2.2 cm, tubules ca. 2 × as long as thecae, without spurs. Berry unknown. Fl. Nov.

Forests; 1000–2100 m. SE Xizang [India].

23. *Agapetes hyalocheilos* Airy Shaw, Bull. Misc. Inform. Kew 1935: 42. 1935.

透明边树萝卜 tou ming bian shu luo bo

Agapetes saligna J. D. Hooker var. *cordifolia* C. B. Clarke.

Shrubs glabrous. Twigs terete, ca. 1 mm in diam., with sparse orbicular lenticels. Leaves scattered; petiole ca. 2 mm; leaf blade ovate-lanceolate, 7–12.5 × 1.5–3.2 cm, thickly papery, glabrous, secondary veins ca. 8 pairs, inconspicuous, base rounded, margin very narrowly hyalocartilaginous, entire, without basal glands, apex acuminate or subcaudate. Inflorescences corymbose, ca. 1.5 cm. Pedicel ca. 2 cm, expanded apically. Calyx tube 6–7 mm; limb divided ca. 1/2; lobes narrowly triangular, ca. 3 mm, carinate on back, apex acute. Corolla bright red, with darker bands, narrowly funnelliform, ca. 2 cm; lobes recurved, broadly triangular, 1–2 mm. Filaments 2–3 mm, slightly papillose-ciliolate; anthers ca. 1.5 cm, thecae ca. 4 mm, papillate, tubules free, ca. 3 × as long as thecae, without spurs. Berry unknown.

Forests, epiphytic on trees; ca. 1000 m. S Xizang [N Myanmar].

24. *Agapetes xizangensis* S. H. Huang, Acta Phytotax. Sin. 25: 315. 1987.

西藏树萝卜 xi zang shu luo bo

Shrubs 1–2 m tall, or trees to 15 m tall, glabrous. Twigs terete, ca. 8 mm in diam. Leaves scattered; petiole 1–2 cm; leaf blade oblong-lanceolate, 10–21 × 2–4.5 cm, thickly leathery, secondary veins 4–6 pairs, inconspicuous, base broadly cuneate to rounded, margin slightly revolute, sparsely inconspicuously denticulate, apex acuminate. Inflorescences corymbose, 1.5–2.2

cm, 6–13-flowered. Pedicel red, 2–3 cm, fleshy, expanded upwards. Calyx tube rounded, ca. 2.5 mm, glaucous; limb red, ca. 1 cm, divided ca. 2/3; lobes ovate-lanceolate, ca. 6 × 4 mm, angled, distinctly veined. Corolla bluish purple with dark purple zig-zag bands, glaucous, tubular, ca. 1.7 cm, fleshy, with 5 raised veins; lobes triangular, ca. 1 mm. Filaments ca. 3 mm, pilose apically; anthers ca. 1.1 cm, thecae papillate; tubules nearly 3 × as long as thecae, without spurs. Berry unknown. Fl. Mar–May.

• Evergreen forests, epiphytic on tall trees; 1500–2000 m. SE Xizang (Médog).

25. *Agapetes subsessilifolia* S. H. Huang, H. Sun & Z. K. Zhou, *Novon* 8: 378. 1998.

近无柄树萝卜 jin wu bing shu luo bo

Shrubs glabrous. Twigs slightly angled, ca. 2 mm in diam. Leaves scattered, sometimes subopposite, subsessile or petioles 2–3 mm; leaf blade ovate-oblong to broadly elliptic, 7.5–14 × 3–5.5 cm, leathery, secondary veins 4–6 pairs, base rounded, margin plane, subtire, basal glands inconspicuous, apex acuminate. Inflorescences corymbose, 3–5-flowered; peduncle 2.5–3.5 cm. Pedicel ca. 3 cm, slender, clavate apically. Calyx tube ca. 4 mm; limb divided ca. 2/3; lobes narrowly triangular, ca. 5 mm. Corolla red, with purplish zig-zag bands, tubular, ca. 2.5 cm; lobes triangular, short. Filaments ca. 1 mm, puberulous; anthers ca. 2.2 cm, tubules ca. 3 × as long as thecae, without spurs. Berry unknown. Fl. Oct.

• Forests, epiphytic on trees; ca. 1600 m. SE Xizang (Médog).

26. *Agapetes nutans* Dunn, *Bull. Misc. Inform. Kew* 1920: 134. 1920.

垂花树萝卜 chui hua shu luo bo

Shrubs. Roots thick. Twigs slightly angled, ca. 1.5 mm in diam., glabrous. Leaves scattered; petiole ca. 4 mm; leaf blade linear, 12–17 × 0.6–1.1 cm, papery, glabrous, secondary veins inconspicuous on both surfaces, base attenuate, margin slightly revolute, shallow and remotely undulate-denticulate towards apex, without basal glands, apex caudate. Inflorescences corymbose-racemose, 5- or 6-flowered; peduncle 6–7 cm, nutant, pubescent. Pedicel ca. 1.2 cm, glabrous, not expanded. Calyx tube ca. 3 mm; limb divided ca. 1/2; lobes triangular, 3–4 mm. Corolla crimson or carmine, tubular, ca. 2.2 cm; lobes green-tipped, ca. 3 mm, apex acute. ?Anthers with thecae ca. 6 mm, papillate; tubules without spurs. Fl. Jan–Feb.

High forests, epiphytic on trees; 1000–1700 m. SE Xizang [NE India (Assam)].

27. *Agapetes linearifolia* C. B. Clarke in J. D. Hooker, *Fl. Brit. India* 3: 449. 1882.

线叶树萝卜 xian ye shu luo bo

Shrubs 30–40 cm tall, slightly branched, glabrous. Root tubers pointed-ovoid. Twigs terete, 1–2 mm in diam. Leaves scattered; petiole robust, 2–4 mm; leaf blade linear-lanceolate, 10–15 × 0.7–1.3 cm, leathery, glabrous, secondary veins ca. 10 pairs, inconspicuous abaxially, base obtuse, margin strongly revolute, entire, without basal glands, apex acuminate. Inflores-

cences corymbose, pendent, 8-flowered; peduncle rose, 0.7–2 (–4.2) cm. Pedicel scarlet, ca. 2.2 cm, fleshy, cup-shaped apically. Calyx tube scarlet, 2–3 mm; limb 5-veined, divided ca. 1/2 or more; lobes triangular, 3–4 mm. Corolla green, glaucous, tubular-conical, 1.3–1.5 cm; lobes erect, triangular, ca. 1.3 mm. Filaments ca. 5 mm, glabrous; anthers 0.8–1 cm, thecae scabrous-papillate, tubules to 1.5 × as long as thecae, without spurs. Berry unknown. Fl. Apr.

• Temperate rain forests, epiphytic on trees; ca. 1800 m. SE Xizang.

The above description follows that of Airy Shaw (*Bull. Misc. Inform. Kew* 1935: 41–42. 1935).

28. *Agapetes discolor* C. B. Clarke in J. D. Hooker, *Fl. Brit. India* 3: 448. 1881.

异色树萝卜 yi se shu luo bo

Shrubs. Twigs terete, ca. 2.5 mm in diam., glabrous or pubescent. Leaves scattered; petiole 1–3 mm; leaf blade green adaxially, elliptic or oblong, ca. 4.5 × 1.2–1.6 cm, leathery, glabrous, abaxially glaucescent, base cuneate, margin plane, remotely shallowly dentate, apex acuminate. Inflorescences corymbose, glabrous, to 8-flowered; peduncle 6–8 mm. Pedicels ca. 2 cm, cup-shaped apically. Calyx tube obconical, ca. 3 mm; limb campanulate, divided ca. 3/4; lobes ovate-triangular, 4–5 mm. Corolla much narrowed upwards in bud, 1.2–3.2 cm, lobed nearly to base, glabrous; lobes linear, margin strongly revolute at anthesis. Filaments ca. 1 mm, glabrous; anthers ca. 1 cm; thecae papillate, tubules ca. 3 × as long as thecae, without spurs. Berry globose, narrower upwards; persistent calyx lobes erect, long, ca. 5 mm in diam. Fl. Oct–Dec, fr. Mar.

Forests, epiphytic on trees; 1200–1500 m. S Xizang [?Bhutan, NE India (Assam, Khasi hills), ?Sikkim].

29. *Agapetes leiocarpa* S. H. Huang, *Acta Phytotax. Sin.* 25: 317. 1987.

光果树萝卜 guang guo shu luo bo

Shrubs to 80 cm. Twigs terete, 1.5–2 mm in diam., densely pubescent, glabrescent. Leaves scattered; petiole 1–2 mm, glabrous; leaf blade lanceolate, 3.5–6 × 0.7–1 cm, leathery, glabrous, secondary veins 3 or 4 pairs, inconspicuous, base cuneate, margin plane, remotely dentate, apex acuminate. Flowers unknown. Infructescences corymbose, 4–6-fruited; peduncle ca. 8 mm, glabrous. Pedicel ca. 2 cm, shallowly cup-shaped apically, glabrous. Berry globose, 4.5–5 mm, glabrous; persistent calyx lobes narrowly triangular, 5–6 mm, leathery, glabrous. Fr. Apr.

• Rocky valleys, epiphytic on tall trees; ca. 1600 m. SE Xizang (Médog).

30. *Agapetes forrestii* W. E. Evans, *Notes Roy. Bot. Gard. Edinburgh* 15: 202. 1927.

伞花树萝卜 san hua shu luo bo

Shrubs or trees, 1–10 m tall. Twigs slightly angled, 1–1.5 mm in diam., densely setose, hairs simple or forked. Leaves scattered; petiole very short; leaf blade green adaxially, ovate-

lanceolate, 2.5–4 × 0.8–1.2 cm, leathery, glabrous, both surfaces glaucous, secondary veins ca. 2 pairs, slightly raised abaxially, impressed adaxially, base rounded, margin revolute, remotely dentate, apex acuminate. Inflorescences corymbose, 4–6-flowered; peduncle ca. 2 cm, glabrous. Pedicel ca. 1.5 cm, setose, pubescent, or glabrous, expanded apically. Calyx tube sparsely setose; limb divided to base; lobes triangular, ca. 2 mm, apex acute. Corolla crimson, with dark red zig-zag bands, tubular, ca. 2 mm; lobes greenish, triangular, ca. 2 mm. Filaments ca. 1 mm, pilose; anthers ca. 1.3 cm, tubules ca. 3 × as long as thecae, without spurs. Berry globose, ca. 5 mm in diam. Fl. Dec–May of next year.

Forests, epiphytic on trees, cliffs; 1800–2700 m. SE Xizang, W Yunnan [N Myanmar].

31. *Agapetes leucocarpa* S. H. Huang, Acta Phytotax. Sin. 25: 317. 1987.

白果树萝卜 bai guo shu luo bo

Shrubs pendulous, glabrous. Twigs terete, 1.5–2 mm in diam. Leaves scattered; petiole 4–5 mm; leaf blade elliptic, 3–5 × 1–2 cm, thickly leathery, secondary veins inconspicuous with fine veins inconspicuous abaxially, impressed adaxially, base broadly cuneate or obtuse, margin cartilaginous, plane, entire, with 1 basal gland per side, apex acuminate or caudate. Inflorescences corymbose, 2- or 3-flowered; peduncle red, ca. 1 cm. Pedicel 7–8 mm, clavate apically. Flowers unknown. Berry white, globose, ca. 5 mm in diam.; persistent calyx lobes ca. 3 mm. Fr. Jun.

• Evergreen forests, epiphytic on trees; 2300–2400 m. SE Xizang (Mêdog).

32. *Agapetes buxifolia* Nuttall ex J. D. Hooker, Bot. Mag. 83: t. 5012. 1857.

黄杨叶树萝卜 huang yang ye shu luo bo

Shrubs 1.2–1.5 m tall. Twigs angled, 2–3 mm in diam., densely glandular hispid. Leaves crowded; petiole ca. 2 mm; leaf blade pale green abaxially, bright green adaxially, obovate or elliptic, 1.5–2.8 × 1–1.2 cm, leathery, glabrous, secondary veins ca. 3 pairs, inconspicuous, base cuneate, margin plane, crenate above middle, apex acute. Inflorescences axillary, 1- or 2-flowered. Pedicel ca. 8 mm, slender, densely villous, slightly expanded towards apex. Calyx tube green, narrowly obconic-campanulate, ca. 3 mm, villous; limb divided to base; lobes triangular-lanceolate, 3–4 mm. Corolla bright red, tubular, ca. 2.5 cm, glabrous; lobes spreading, pale or greenish, ovate-lanceolate, 4–6 mm. Filaments ca. 4 mm, glabrous; anthers ca. 1.8 cm, thecae shortly caudate at base, tubules ca. 4 × as long as thecae, without spurs. Berry unknown. Fl. Apr–May.

Damp forests, epiphytic on trees; 600–900 m. S Xizang [NE India (Assam)].

33. *Agapetes camelliifolia* S. H. Huang, Acta Phytotax. Sin. 25: 318. 1987.

茶叶树萝卜 cha ye shu luo bo

Shrubs to 30 cm tall. Twigs terete, 1–2 mm in diam., densely dark brown setose. Leaves scattered; petiole 2–3 mm, gla-

brous; leaf blade pale abaxially, green adaxially, elliptic, 3.5–5 × 1.5–2.3 cm, leathery, glabrous, secondary veins 4 or 5 pairs with fine veins slightly raised abaxially, impressed adaxially, base broadly cuneate or obtuse, margin slightly revolute, remotely inconspicuously serrate, apex shortly acuminate. Flowers unknown. Fruit solitary, axillary. Pedicel ca. 1.3 cm, glabrous, expanded apically. Immature berry shortly cylindrical, ca. 3 mm in diam.; persistent calyx lobes triangular, ca. 2.5 mm, glabrous. Fr. Apr.

• Forests, epiphytic on trees; ca. 2200 m. SE Xizang (Mêdog).

34. *Agapetes mitrarioides* J. D. Hooker ex C. B. Clarke in J. D. Hooker, Fl. Brit. India 3: 447. 1881.

亮红树萝卜 liang hong shu luo bo

Shrubs small, much branched. Twigs terete, ca. 1 mm in diam., densely brown hispidulous. Leaves scattered; petiole ca. 1 mm; leaf blade elliptic or ovate, 1.2–1.8 × 0.6–1.2 cm, rigidly leathery, secondary veins inconspicuous on both surfaces, base broadly cuneate, margin plane, remotely shallowly rigidly serrate, apex acute. Inflorescences corymbose, 1- or 2-flowered; peduncle 1.5–1.7 cm, very slender, puberulous. Pedicel 1.6–2 cm, slender, puberulous, expanded apically. Calyx tube ca. 6 mm, puberulous; limb divided ca. 1/2; lobes triangular-lanceolate, 2.5–3 mm. Corolla bright red, tubular, 2–2.5 cm, puberulous on angles; lobes triangular, 2–3 mm. Berry unknown.

• Forests, epiphytic on trees, rocks. SE Xizang.

One of us (Stevens) questions whether this is a good species.

35. *Agapetes refracta* Airy Shaw, Kew Bull. 13: 496. 1959.

折瓣树萝卜 zhe ban shu luo bo

Shrubs. Twigs terete, 1–2 mm in diam., densely long fus-cous-setose. Leaves scattered; petiole ca. 1 mm; leaf blade ovate, 1.7–2.8 × 0.9–1.7 cm, thinly papery, glabrous, base rounded, margin plane, remotely crenulate, apex acute or sub-acute. Flowers solitary, axillary. Pedicel 1.5–2.5 cm, slender, nutant, glabrous, not expanded. Calyx tube elliptic-obovate, glabrous; limb divided nearly to base; lobes triangular, 1.5–2 mm. Corolla rose, ellipsoidal-tubular, 1.6–1.8 cm, glabrous; lobes reflexed, linear-subulate, 7–8.5 mm, margin not revolute. Filaments 4–5 mm, glabrous; anthers 1.2–1.4 cm; thecae papil-late, base shortly caudate; tubules ca. 2 × as long as thecae, without spurs. Berry unknown. Fl. Oct.

• Forests, epiphytic on trees; 1200–1500 m. SE Xizang.

36. *Agapetes lacei* Craib, Bull. Misc. Inform. Kew 1913: 43. 1913.

灯笼花 deng long hua

Shrubs 30–90 cm tall, pendulous. Rootstock tuberous. Twigs 1–2 mm in diam., rounded, densely spreading to ascending brown setose. Leaves crowded; petiole ca. 1 mm, puberulous; leaf blade elliptic, 0.7–2 × 0.5–1 cm, leathery, glabrous, secondary veins 1 or 2 pairs, inconspicuous, base cuneate or rounded, margin recurved, remotely serrulate, apex obtuse or acute. Flowers solitary, axillary. Pedicel 1.5–1.8 cm, densely pubescent, glandular pubescent, tomentellate, or glabrous. Ca-

lyx tube ca. 4 mm, pubescent, tomentellate, intermixed glandular setose, or glabrous; limb divided 1/2–3/4; lobes triangular, 1.5–3 mm. Corolla light crimson, tubular, 2–3 cm, glabrous; lobes spreading, dark green, triangular, 7–8 mm. Filaments 0.8–1.5 mm, glabrous; anthers 1.3–1.7 cm, thecae apiculate at base, tubules ca. 1.5 × as long as thecae, without spurs. Berry red, 5–8 mm in diam. Fl. Jan–Jun, fr. May.

Evergreen or shaded forests, epiphytic on trees, hills, cliffs, ledges, boulders, rocks; 1500–3000 m. SE Xizang, W Yunnan [N Myanmar (Kachin)].

- 1a. Pedicel and calyx tube glabrous 36b. var. *glaberrima*
 1b. Pedicel and calyx tube with hairs.
 2a. Pedicel and calyx tube pubescent,
 calyx tube also glandular setose 36a. var. *lacei*
 2b. Pedicel and calyx tube densely
 grayish tomentellate 36c. var. *tomentella*

36a. *Agapetes lacei* var. *lacei*

灯笼花(原变种) deng long hua (yuan bian zhong)

Pedicel and calyx tube pubescent, calyx tube also glandular setose.

Evergreen forests, epiphytic on trees; 1500–1800 m. SE Xizang, W Yunnan [N Myanmar (Kachin)].

36b. *Agapetes lacei* var. *glaberrima* Airy Shaw, Kew Bull. 13: 498. 1959.

无毛灯笼花 wu mao deng long hua

Pedicel and calyx tube glabrous.

• Shaded forests, epiphytic on trees, cliffs, boulders, rocks; 2100–3000 m. SE Xizang, NW Yunnan.

36c. *Agapetes lacei* var. *tomentella* Airy Shaw, Kew Bull. 13: 498. 1959.

绒毛灯笼花 rong mao deng long hua

Pedicel and calyx tube densely grayish tomentellate.

• Shaded forests, epiphytic on trees, hills, cliff ledges in valleys; 2100–3000 m SE Xizang, NW Yunnan.

37. *Agapetes serpens* (Wight) Sleumer, Bot. Jahrb. Syst. 70: 105. 1939.

五翅莓 wu chi mei

Vaccinium serpens Wight, Calcutta J. Nat. Hist. 8: 171. 1847; *Pentapterygium serpens* (Wight) Klotzsch; *Thibaudia myrtifolia* Griffith.

Shrubs 40–60 cm tall. Rootstock tuberous. Twigs terete, 1–2 mm in diam., densely spreading glandular setose. Leaves crowded; petiole ca. 1 mm, glabrous; leaf blade pale green abaxially, deep green adaxially, narrowly ovate or ovate-oblong, 1.2–2 cm × 5–8 mm, leathery, abaxially smooth, adaxially drying transversely rugose, glabrous, secondary veins ca. 3 pairs, usually inconspicuous, base rounded, margin slightly recurved, serrate above middle, apex acute or obtuse, distinctly mucronulate. Inflorescences fasciculate, 1–3-flowered. Pedicel erect or pendulous, 0.7–2.5 cm, densely spreading glandular setose, slightly thicker at apex. Calyx tube 3.5–4 mm, 5-wing-

ed, along wings sparsely glandular setose; limb divided nearly to base; lobes ovate-triangular, 3.5–4.5 mm, glandular ciliate, apex acute or subobtusate. Corolla bright red, orange, or pinkish white, with dark red zig-zag bands, tubular, 1.2–2.8 cm, 5-angled, sparsely glandular; lobes recurved, triangular, 2–3(–6) mm. Filaments ca. 3 mm, glabrous; anthers ca. 1.9 cm, thecae papillate, base apiculate, tubules to 2 × as long as thecae, without spurs. Berry obovoid, 5-winged, ca. 6 mm in diam.; persistent calyx lobes enlarged. Fl. May–Jun, fr. May–Nov.

Evergreen forests, epiphytic on mossy tree trunks, rocks; 1200–2400 m. S Xizang (Dinggyê, Nyalam) [Bhutan, NE India (Darjiling), E Nepal, Sikkim].

38. *Agapetes praeclara* C. Marquand, J. Linn. Soc., Bot. 48: 197. 1929.

藏布江树萝卜 zang bu jiang shu luo bo

Shrubs pendulous. Twigs terete, 1–1.5 mm in diam., densely spreading rubiginous setose. Leaves scattered; petiole ca. 1 mm; leaf blade ovate-elliptic, ca. 1.5 × 1 cm, leathery, glabrous, adaxially transversely bullate, veins impressed, secondary veins ca. 3 pairs, inconspicuous abaxially, barely evident adaxially, base rounded, margin recurved, remotely 2- or 3-serrate, apex acute to subobtusate. Inflorescences fasciculate, 1- or 2-flowered. Pedicel tinged with red, ca. 1 cm, glabrous, not swollen. Calyx tube ca. 2 mm, glabrous; limb divided nearly to base; lobes triangular, 1.5–2 mm. Corolla crimson or deep red, tubular, 1.5–2 cm, glabrous; lobes green, apex acute. Filaments ca. 0.5 mm, glabrous; anthers 9–12 mm, tubules 2–3 × as long as thecae, without spurs. Berry unknown. Fl. Nov–Feb of next year.

• Evergreen forests, epiphytic on trees, cliffs; ca. 2100 m. SE Xizang (Mêdog: Zangbo gorge).

39. *Agapetes miranda* Airy Shaw, Kew Bull. 3: 102. 1948.

坛花树萝卜 tan hua shu luo bo

Shrubs; branches ca. 60 cm, pendulous. Rootstock tuberous. Twigs terete, ca. 1 mm in diam., densely setose. Leaves crowded; petiole 0.5–1 mm, slender; leaf blade broadly elliptic or suborbicular, 5–9 × 4–6 mm, rigidly leathery, abaxially glaucous, drying rugose, glabrous, secondary veins inconspicuous on both surfaces, base rounded or obtuse, margin recurved, inconspicuously crenate or subentire, apex rounded or obtuse. Inflorescences fasciculate, 1- or 2-flowered. Pedicel 1–1.4 cm, slender, sparsely setose, not expanded. Calyx tube obovoid, setose at base; limb divided to base; lobes spreading, ovate-triangular, ca. 2 mm, sparsely ciliate. Corolla lemon yellow, urceolate, 7–8 mm, with 5 wings ca. 2 mm wide, shortly glandular hairy on wings only; lobes spreading, green, ovate-triangular. Filaments 2–2.5 mm, glabrous; thecae papillate, tubules ca. as long as thecae, without spurs. Berry unknown. Fl. May.

Evergreen forests, epiphytic on trees; ca. 2400 m. SE Xizang [NE India (Assam)].

40. *Agapetes praestigiosa* Airy Shaw, Kew Bull. 13: 495. 1959.

听邦树萝卜 ting bang shu luo bo

Shrubs pendulous. Twigs terete, 1–2 mm in diam., densely

fuscous-setose. Leaves crowded; petiole ca. 1 mm; leaf blade drying grayish green adaxially, ovate or elliptic, 1.5–2.2 × 0.6–1.1 cm, rigidly leathery, glabrous, adaxially bullate, base broadly cuneate to rounded, margin very recurved, serrulate-denticulate, apex abruptly acuminate, nearly apiculate. Inflorescences subfasciculate, sometimes on older wood, 3–8-flowered. Pedicel 6–10 mm, glabrous, not expanded. Calyx tube obovoid, ca. 2 mm in diam., glabrous; limb divided ca. 1/2; lobes triangular, 1.5–2 mm, glabrous. Corolla cherry-red, globose-urceolate, 5–7 mm, strongly 5-angled, glabrous; lobes erect, triangular, ca. 0.5 mm. Filaments ca. 0.5 mm, glabrous; anthers 4–5 mm, thecae caudate at base, tubules ca. as long as thecae, without spurs. Berry globose, 3–5 mm in diam., glabrous. Fl. May.

Forests, epiphytic on trees; 2100–2400 m. SE Xizang (near Dirangzong) [NE India (Assam)].

41. *Agapetes pilifera* J. D. Hooker ex C. B. Clarke in J. D. Hooker, Fl. Brit. India 3: 448. 1881.

钟花树萝卜 zhong hua shu luo bo

Vaccinium piliferum (J. D. Hooker) Sleumer.

Trees to 5 m tall or large, epiphytic shrubs. Twigs barely angled, 1–1.5 mm in diam., glabrous. Leaves scattered; petiole 4–6 mm, glabrous or glandular pilose; leaf blade drying blackish, elliptic, 4.5–6.5 × 1.5–2.8 cm, thinly leathery, glabrous, secondary veins 3–5 pairs, barely evident, base rounded, margin plane, entire, without basal glands, apex slenderly caudate-acuminate. Flowers axillary, fasciculate, 1–4-flowered. Pedicel filiform, 1.5–2 cm, densely spreading glandular pilose, slightly thickened upwards. Calyx tube green, ca. 1 mm; limb ± divided; lobes triangular, ca. 0.5 mm. Corolla green, shortly campanulate, 5–7 mm, glabrous; lobes oblong, apex acute. Filaments ca. 0.5 mm, glabrous; anthers ca. 3 mm, tubules ca. 1.5 × as long as thecae, with spreading spurs. Berry reddish to blackish, globose, 3–4 mm in diam., glabrous. Fr. Nov.

Open forests, river banks in forests, sometimes epiphytic; 1200–1500 m. SE Xizang, NW Yunnan (Dulongjiang) [NE India (Khasi hills), Myanmar].

42. *Agapetes inopinata* Airy Shaw, Kew Bull. 14: 229. 1960.

沧源树萝卜 cang yuan shu luo bo

Agapetes glandulosissima (C. Y. Wu ex W. P. Fang & Z. H. Pan) S. H. Huang; *Vaccinium glandulosissimum* C. Y. Wu ex W. P. Fang & Z. H. Pan.

Shrubs. Twigs terete, ca. 1.5 mm in diam., densely spreading brown glandular setose or setose. Leaves scattered; petiole ca. 1 mm, glabrous; leaf blade ovate or ovate-oblong, 3–5.5 × 1.4–2 cm, leathery, glabrous, secondary veins 6–8 pairs, obsolete abaxially, evident adaxially, fine veins barely evident, base rounded, margin plane, entire, without basal glands, apex acuminate or shortly caudate-acuminate. Inflorescences axillary, racemose, 4–10 mm, with dense glandular hairs, 4–6-flowered. Pedicel 4–7 mm, with dense glandular hairs, not expanded. Calyx tube rounded, ca. 1 mm, usually densely glandular hairy; limb divided to base; lobes triangular, ca. 1 mm. Corolla red, tubular, ca. 8 mm, with dense glandular hairs; lobes erect or recurved, triangular, ca. 1 mm. Filaments ca. 3 mm, puberulous;

anthers ca. 4 mm, thecae papillate, tubules ca. as long as thecae, with 2 short spreading spurs. Berry unknown. Fl. Apr.

Forests, epiphytic on *Quercus*; ca. 1600 m. SW Yunnan [Myanmar].

The illustration of *Agapetes glandulosissima* in Acta Bot. Yunnan. 5: 147. 1983 shows the filaments longer than the anthers; the original description mentions the inflorescence ca. 2.5 cm and pedicels 2–3 mm.

43. *Agapetes oblonga* Craib, Bull. Misc. Inform. Kew 1913: 43. 1913.

长圆叶树萝卜 chang yuan ye shu luo bo

Agapetes oblonga var. *longipes* Airy Shaw.

Shrubs 0.5–3 m tall, occasionally small trees to 4 m tall. Rootstock tuberous. Twigs rounded, 1.3–2 mm in diam., densely white pubescent and densely brown spreading glandular setose. Leaves scattered; petiole 1–1.5 mm; leaf blade oblong, ovate, or oblong-lanceolate, 3–10 × 1.2–4 cm, leathery or papery, abaxially glabrous or sparsely setose on veins, adaxially smooth or ± bullate, glabrous, secondary veins 5–7 pairs, slightly raised abaxially, flat to slightly impressed adaxially, base broadly cuneate, rounded, shallowly cordate, or obtuse, margin plane, entire or inconspicuously serrate beyond middle or sparsely denticulate at apex, apex acute, acuminate, or caudate. Inflorescences fasciculate, sometimes on older wood, 1–4-flowered. Pedicel 0.6–1.8(–2.5) cm, densely pubescent, sometimes intermixed glandular setose, or glabrous, not expanded. Calyx tube red or reddish green, ca. 2 mm, densely spreading hirsute; limb sparsely hirsute or glabrous, divided ca. 1/2; lobes ovate-triangular, 1.5–2 mm. Corolla crimson or carmine, tubular, 1.3–1.9 mm, 5-angled, glabrous or sparsely hirsute along angles; lobes green or yellow, triangular, ca. 1.5 mm. Filaments 4–9 mm, glabrous; anthers ca. 6 mm, tubules ± as long as thecae, with 2 short spurs. Berry globose, 4–5 mm in diam. Fl. Oct–Apr of next year, fr. Mar–May.

Evergreen forests, epiphytic on trees, rocks; 1300–1700(–2700) m. SE Xizang, W Yunnan [Myanmar].

44. *Agapetes malipoensis* S. H. Huang, Acta Bot. Yunnan. 5: 148. 1983.

麻栗坡树萝卜 ma li po shu luo bo

Shrubs. Rootstock spindle-shaped. Twigs terete, to 7 mm in diam., densely brown spreading glandular setose. Leaves scattered and sometimes subopposite; petiole 1–3 mm and glabrous or leaves sessile; leaf blade elliptic or oblong-lanceolate, 5–12.5 × to 5.5 cm, leathery, glabrous, adaxially slightly bullate, secondary veins 5–7 pairs, secondary and fine veins raised on both surfaces, base attenuate, obtuse, or auriculate, margin recurved, entire, with 1 or 2(–4) subbasal glands per side, apex acute or acuminate. Inflorescences fasciculate, sometimes below leaves, 3- or 4-flowered. Pedicel 3–6 mm, slightly thickened towards apex, densely glandular setose or glabrous. Calyx 4–5 mm, densely spreading glandular setose; limb divided ca. 1/3; lobes triangular, ca. 1.5 mm. Corolla white, tubular, ca. 2 cm, with glandular hairs; lobes triangular, ca. 1 mm. Filaments ca. 1.4 cm, upwards densely pubescent; anthers ca. 6 mm, thecae papillate, tubules to 2 × as long as thecae, with 2

erect spurs. Berry globose, 4–6 mm in diam., setose. Fl. Oct–Dec, fr. Oct–Jan.

Dense forests, sometimes epiphytic on trees, thickets at bases of hills, rock crevices; 1100–2000 m. SE Yunnan [N Vietnam].

45. *Agapetes mannii* Hemsley, Gard. Chron., ser. 3, 12: 364. 1892.

白花树萝卜 bai hua shu luo bo

Agapetes yunnanensis Franchet.

Shrubs 0.3–0.6(–1) m tall. Rootstock tuberous. Twigs terete, 1–1.8 mm in diam., densely puberulous when young, hairs in small groups. Leaves crowded; petiole ca. 2 mm, densely puberulous; leaf blade obovate, elliptic, or spatulate, 1.1–2.5 × 0.5–1.1 cm, leathery, abaxially glabrous, adaxially puberulous on midvein, otherwise glabrous, sometimes slightly transversely bullate, secondary veins 3 or 4 pairs, barely conspicuous, base cuneate, margin recurved, entire, with 1, rarely 2 subbasal glands per side, apex rounded, emarginate. Flowers solitary or 2 together. Pedicel 4–8 mm, glabrous, not swollen. Calyx tube 1.5–2 mm, densely puberulous or glabrous; limb divided ca. 1/2; lobes subtriangular, ca. 1 mm. Corolla white or greenish white, tubular, 1.1–1.5 cm, glabrous; lobes erect or ?recurved, triangular, ca. 2 mm. Filaments ca. 8 mm, densely woolly; anthers ca. 6 mm, tubules ca. as long as thecae, with 2 erect spurs. Berry greenish white, when mature bright red to purple, globose, 0.5–1.1 cm in diam. Fl. (May–)Jun–Sep, fr. (Aug–)Oct–Nov.

Evergreen forests, sometimes epiphytic on *Quercus*, dry slopes, dry cliff ledges, humus-covered boulders, rocks; 1400–3100(–3600) m. Yunnan [NE India (Khasi hills), Myanmar, Thailand].

46. *Agapetes obovata* (Wight) J. D. Hooker in Bentham & J. D. Hooker, Gen. Pl. 2: 572. 1876.

倒卵叶树萝卜 dao luan ye shu luo bo

Vaccinium obovatum Wight, Icon. Pl. Ind. Orient. 4: t. 1193. 1848; *Thibaudia obovata* (Wight) Griffith.

Shrubs much branched. Twigs terete, ca. 1 mm in diam., glabrous or spreading hispid. Leaves crowded; petiole ca. 2.5 mm; leaf blade obovate-spatulate, 0.8–2.2 cm × 5–9 mm, leathery, glabrous, adaxially slightly rugose, secondary veins inconspicuous, base cuneate, margin recurved, entire, with 1 subbasal gland per side, apex obtuse or emarginate. Flowers solitary, pendulous. Pedicel 0.8–1 cm, glabrous, not swollen. Calyx tube 1–2 mm, glabrous; limb divided 2/3 to base; lobes triangular-lanceolate, ca. 1 mm. Corolla deep red, campanulate, 6–7 mm; lobes triangular, 1.5–2.5 mm, margin ?revolute. Filaments ca. 1.5 mm, pilose; anthers ca. 4.5 mm, thecae papillate, base apiculate, tubules ca. 2 × as long as thecae, with 2 erect spurs. Berry white, globose, 4–5 mm in diam. Fl. Mar.

Evergreen forests, epiphytic on trees; ca. 2100 m. SE Yunnan [NE India (Khasi hills)].

In overall appearance this species is much like a small-leaved *Vaccinium*, but the corolla is pointed in bud.

47. *Agapetes pensilis* Airy Shaw, Bull. Misc. Inform. Kew 1935. 52. 1935.

倒挂树萝卜 dao gua shu luo bo

Agapetes dulongensis S. H. Huang.

Shrubs pendulous. Rootstock spindle-shaped, ca. 3.5 cm in diam. Twigs terete, 1–2 mm in diam., densely rust- or brown hirsute. Leaves dense; petiole ca. 1 mm or leaves sessile; leaf blade ovate, elliptic, or suborbicular, 7–10 × 5–8 mm, leathery, abaxially densely or sparsely hirsute, adaxially rugose, sparsely puberulous, venation inconspicuous, base rounded to broadly cuneate, margin recurved, entire, without basal glands, sparsely setose, apex acute or rounded, mucronulate. Inflorescences fasciculate, 1–3-flowered. Pedicel 1–3 mm, densely glandular villous, not swollen. Calyx tube ca. 2 mm, densely glandular villous; limb divided to base; lobes triangular-lanceolate, ca. 2 mm, glandular villous. Corolla white, pink in bud, cylindrical, ca. 1.6 cm, densely glandular villous; lobes erect or recurved, triangular, 1–2 mm. Filaments ca. 1.1 cm, densely pubescent; anthers ca. 6.5 mm, tubules ca. as long as thecae, with 2 erect spurs ca. 1 mm. Berry unknown. Fl. Aug.

Forests, epiphytic on trees; 2300–2700(–3500) m. SE Xizang, NW Yunnan (Dulongjiang) [N Myanmar].

48. *Agapetes epacridea* Airy Shaw, Kew Bull. 3: 94. 1948.

尖叶树萝卜 jian ye shu luo bo

Shrubs many branched. Twigs densely spreading setose, rust-colored initially. Leaves crowded; petiole less than 1 mm; leaf blade ovate to suborbicular, 8–15 × 4–7 mm, leathery, transversely wrinkled, glabrous, base broadly cuneate or rounded, margin recurved, entire, towards apex ciliate or glandular ciliate, apex abruptly narrowed into a long pungent mucro. Inflorescences fasciculate, 1–3-flowered. Pedicel 4–5 mm, densely spreading glandular setose and shortly white pubescent. Calyx tube obovate, 2–2.5 mm in diam., densely spreading glandular setose and white pubescent; lobes ovate-triangular, apex acute. Flowers unknown. Berry immature, ca. 7 mm in diam., densely glandular setose, apex truncate; style persistent. Fr. Dec.

Evergreen forests, epiphytic on trees, rocks; 1800–2100 m. SE Xizang (Médog) [N Myanmar].

49. *Agapetes brachypoda* Airy Shaw var. ***gracilis*** Airy Shaw, Kew Bull. 3: 94. 1948.

纤细短柄树萝卜 xian xi duan bing shu luo bo

Shrubs. Twigs rounded, 1–1.5 mm in diam., densely rust-colored setose when young. Leaves scattered; petiole 1–2 mm; leaf blade elliptic, obovate, or oblong-elliptic, 1.4–1.9 × 0.7–1 cm, thickly leathery, glabrous, abaxially smooth, adaxially rugose, secondary veins ca. 4 pairs, raised abaxially, base cuneate, margin revolute, undulate or remote denticulate, apex rounded. Inflorescences fasciculate, 1- or 2-flowered, pendulous. Pedicel 2–4 mm, setose, not expanded. Calyx densely rust-colored glandular setose; tube obconical, ca. 4 mm; limb divided to base; lobes ovate-lanceolate, 2.5–4(–6) mm. Corolla dull red, tubular; tube 1.6–1.7 cm, pubescent; lobes triangular, 1–2 mm, margin revolute. Filaments ca. 1.3 cm, densely pubescent; anthers ca. 6 mm, thecae papillate, tubules slightly

shorter than thecae, with 2 spurs. Berry unknown. Fl. May.

• Forests, epiphytic on lower side of mossy boughs; ca. 2400 m. W Yunnan (Lushui).

This variety is distinguished from var. *brachypoda* (which occurs in Myanmar) by its elongate, slender twigs, narrower and smaller leaves, pedicels and calyx tube without white pubescence, and dull red (not white) corolla.

50. *Agapetes anomyma* Airy Shaw, Kew Bull. 3: 95. 1948.

锈毛树萝卜 xiu mao shu luo bo

Shrubs ± scandent. Twigs terete, 1–2 mm in diam., rust-colored pilose. Leaves scattered; petiole ca. 1 mm; leaf blade ovate, rarely broadly ovate, or elliptic-ovate to oblong-ovate, 1.5–2.5 × 0.9–1.8 cm, thinly papery, glabrous, secondary veins 6–8 pairs, base broadly cuneate to rounded, margin slightly revolute or plane, conspicuously crenulate-serrate, apex acute or subobtuse. Inflorescences fasciculate, 1- or 2-flowered. Pedicel 3–4 mm, densely setose, not expanded. Flowers unknown. Berry globose, 4–5 mm in diam., densely rust-colored setose; persistent calyx with limb divided to base, lobes ca. 2 mm. Fr. Aug.

• Forests, epiphytic on trees; 2100–2700 m. SE Xizang.

51. *Agapetes rubrobracteata* R. C. Fang & S. H. Huang, Acta Bot. Yunnan. 5: 151. 1983.

红苞树萝卜 hong bao shu luo bo

Vaccinium chapaense Merrill, J. Arnold Arbor. 19: 60. 1938, not *Agapetes chapaensis* Dop (1930).

Shrubs dwarf, 1–2 m tall. Twigs angled, 0.8–1.5 mm in diam., initially puberulous, rarely scattered setose. Leaves dense; petiole ca. 2 mm, glabrous or puberulous; leaf blade obovate, 0.8–1.6 × 0.5–1.2 cm, leathery, glabrous, secondary veins ca. 3 pairs, raised abaxially, impressed adaxially, base attenuate, cuneate, margin plane, crenulate above middle, apex obtuse or rounded. Inflorescences shortly racemose, from upper axils, ca. 2.5 cm, 1–5-flowered; bracts caducous, leaflike, greenish red, 1.3–1.5 × ca. 1.1 cm, glabrous. Pedicel 1–3.5 mm, glabrous, not expanded towards apex; bracteoles leaflike, 4–6 × ca. 2 mm. Calyx tube obconical, ca. 2.5 mm, glabrous; limb divided to base; lobes ovate-triangular, ca. 1.5 mm. Corolla white, greenish white, or pinkish, tubular, 0.7–1.7 cm, glabrous but tube hairy inside; lobes ca. 1 mm. Filaments 4–14 mm, woolly; anthers 2.5–4.5 mm, thecae papillate, tubules slightly longer than thecae, with 2 erect spurs. Berry green to purplish black, with a bloom, globose or ellipsoidal, 4–7(–10) mm in diam.; pedicel ca. 5 mm. Fl. Mar–Jun, fr. Oct–Dec.

Mossy forests, forest margins, bamboo thickets, open thickets, thickets on calcareous mountain summits, epiphytic on trees; 1000–2400(–3100) m. S Guangxi, SW Guizhou, SC Sichuan (Emei Shan), SE and WC Yunnan [Vietnam].

52. *Agapetes guangxiensis* D. Fang, Acta Phytotax. Sin. 36: 276. 1998.

广西树萝卜 guang xi shu luo bo

Shrubs pendulous. Root tubers 0.7–1.7 cm in diam. Twigs

terete, ca. 1.5 mm in diam., densely dark brown spreading glandular setose, glabrescent. Leaves dense; petiole ca. 1 mm; leaf blade ovate, 7–14 × 4–9 mm, leathery, glabrous, secondary veins ca. 3 pairs, these and midvein raised abaxially, impressed adaxially, fine veins inconspicuous, base obtuse, margin slightly revolute, upper parts glandular spiny, apex cuneate, setose. Inflorescences fasciculate, from upper axils, (1- or)2–5-flowered. Pedicel ca. 5 mm, expanded apically, hirsute. Calyx tube turbinate, ca. 1 mm in diam., densely hirsute; limb lobed to base; lobes triangular, ca. 1.5 mm, hirsute. Corolla white, tinged with pale green, subtubular, 9.5–10 mm, slightly 5-angled, angles pubescent; lobes triangular, ca. 1 mm, pubescent. Filaments ca. 4 mm, pubescent; anthers ca. 4.5 mm, tubules ca. 2 × as long as thecae, without spurs. Berry unknown. Fl. Sep.

• Forests, limestone hills, epiphytic on trees; ca. 900 m. W Guangxi (Napo).

53. *Agapetes spissa* Airy Shaw, Bull. Misc. Inform. Kew 1935: 49. 1935.

丛生树萝卜 cong sheng shu luo bo

Shrubs small. Twigs terete, 2–5 mm in diam., densely long rust-colored glandular-setose, linear-lanceolate, 5–10 mm, brown membranous. Leaves dense; petiole very short; leaf blade obovate or subelliptic, 2–2.5 × 1–1.6 cm, glabrous, secondary veins 4 or 5 pairs, base cuneate, margin subrecurved, crenulate-denticulate, teeth apiculate, apex subacute or subobtuse. Flowers solitary, pendulous. Pedicel ca. 2 mm, glandular setose, not expanded. Calyx tube obconical, 2–3 mm in diam., densely pubescent; limb divided ca. 4/5; lobes ovate-triangular, 2–3 mm, pubescent. Corolla white, subtubular; tube 8–10 mm, 5-angled, densely puberulous, glandular hairs along angles; lobes triangular, ca. 1 mm, glabrescent. Filaments 3–4 mm, pubescent; anthers ca. 5 mm, thecae rounded and shortly cornute at

base, tubules ca. $1.5 \times$ as long as thecae, with 2 erect spurs.
Berry unknown. Fl. Jul.

- Forests, epiphytic on trees; 1500–1800 m. SE Xizang.