

**23. DRACOCEPHALUM** Linnaeus, Sp. Pl. 2: 594. 1753, nom. cons.

青兰属 qing lan shu

*Fedtschenkiella* Kudrjashev.

Herbs perennial, rarely annual. Stems erect or prostrate. Leaves long petiolate at stem base, petiolate or sessile upward, entire, pinnate. Verticillasters in dense capitula or spikes, or widely spaced; bract margin acute serrate or spinescent, rarely entire. Calyx tubular or campanulate-tubular, straight or slightly curved, 15-veined, 2-lipped, 5-toothed; teeth subequal or sometimes middle tooth of upper lip wider than lateral teeth, sinuses with a thickened fold. Corolla blue-purple, pink, or violet, rarely white, slender basally, dilated at throat, 2-lipped; upper lip straight or slightly curved; lower lip 3-lobed, middle lobe largest. Stamens 4, posterior 2 longer than anterior 2; anthers glabrous, rarely hairy, cells 2, divaricate at nearly 180°. Style apex equally 2-cleft. Nutlets oblong, smooth, sometimes mucilaginous.

About 70 species: alpine and semidry regions mainly in temperate Asia, with a few in Europe, one in North America; 35 species in China.

Closely related to *Nepeta* but calyces with a thickened fold between the teeth.

- 1a. Stamens long exerted; corolla ca. 0.8 cm ..... 35. *D. stamineum*
- 1b. Stamens included or only short exerted; corolla 1–4.2 cm.
  - 2a. Dwarf caespitose plants, stems 3–15 cm; branches numerous, crowded; leaves 3–5 mm, circular-ovate, pinnate- or palmatipartite.
    - 3a. Middle tooth of upper lip of calyx slightly wider than lateral teeth, upper lip teeth the same shape; leaves palmately 5-parted ..... 30. *D. palmatoides*
    - 3b. Middle tooth of upper lip of calyx 2.5–5×wider than lateral teeth, broadly ovate, lateral teeth lanceolate to narrowly triangular; leaves pinnatifid.
      - 4a. Middle tooth of upper lip of calyx ca. 2.5×wider than lateral teeth ..... 31. *D. origanoides*
      - 4b. Middle tooth of upper lip of calyx 4–5×wider than lateral teeth ..... 32. *D. paulsenii*
  - 2b. Stems erect or suberect, taller, unbranched or few branched; leaves more than 10 mm, simple to pinnatisect.
    - 5a. Leaves pinnatisect, segments linear.
      - 6a. Calyx conspicuously 2-lipped; leaves sometimes 2-pinnatifid ..... 8. *D. bipinnatum*
      - 6b. Calyx of 5 subequal teeth, lanceolate to narrowly triangular; leaves clearly pinnatisect.
        - 7a. Leaf sections 2- or 3-paired, crowded toward blade base, appearing palmatisect.
          - 8a. Flowers 2.5–2.8 cm; leaf segments suberect ..... 5. *D. forrestii*
          - 8b. Flowers 3.5–4.2 cm; leaf segments oblique or subpatent.
            - 9a. Calyx densely lanate-villous, teeth 1/4–1/3 as long as tube, teeth lanceolate-triangular, subulate-acuminate ..... 6. *D. isabellae*
            - 9b. Calyx slightly scabrid, teeth ca. as long as tube, lanceolate, acute ..... 7. *D. hookeri*
        - 7b. Leaf segments not crowded at blade base.
          - 10a. Corolla less than 1.5 cm ..... 3. *D. propinquum*
          - 10b. Corolla more than 2 cm.
            - 11a. Internodes 1–1.2 cm; leaves abaxially strigose on nerves ..... 1. *D. taliense*
            - 11b. Internodes 2–6 cm; leaves abaxially densely white pubescent.
              - 12a. Upper floral leaves much shorter than calyx ..... 4. *D. tanguticum*
              - 12b. Upper floral leaves as long as to longer than calyx ..... 2. *D. calophyllum*
    - 5b. Leaves undivided.
      - 13a. Leaves entire.
        - 14a. Bracts 2- or 3-serrulate; corolla 1.4–1.8 cm; teeth of upper lip of calyx divided almost to base, middle tooth of upper lip ca. 2×as wide as lateral teeth; anthers glabrous.
          - 15a. Leaves lanceolate to ovate-lanceolate, 1.5–3×4–8 mm, entire ..... 15. *D. integrifolium*
          - 15b. Leaves linear, 5–7×0.8–1.2 mm, 2- or 3-serrulate; teeth with apical spines to 3 mm..... 14. *D. fruticosum*
        - 14b. Bracts entire; corolla more than 1.8 cm; teeth of upper lip of calyx divided to nearly 1/2 its length, middle tooth of upper lip slightly wider than lateral teeth; anthers hairy.
          - 16a. Stems subglabrous; calyx minutely hairy toward base, subglabrous toward apex; corolla 3.3–4 cm 34. *D. argunense*
          - 16b. Stems sparsely minute hairy toward base; calyx minutely hairy throughout; corolla 1.7–2.4 cm ..... 33. *D. ruyshiana*
      - 13b. Leaves serrate or dentate.
        - 17a. Calyx conspicuously 2-lipped.
          - 18a. Calyx 2-lipped nearly to base ..... 11. *D. breviflorum*
          - 18b. Calyx 2-lipped to ca. 1/2 its length.
            - 19a. Leaves ovate, base ± cordate, crenate; bracts 3–8-spinescent-serrate; corolla white ..... 9. *D. heterophyllum*
            - 19b. Leaves lanceolate or narrowly oblong, base cuneate to rounded, denticulate; bracts 1–3-spinescent-serrate; corolla blue-purple.
              - 20a. Perennial herbs; leaves ± leathery, base cuneate, few spinescent-denticulate ..... 10. *D. peregrinum*

- 20b. Annual herbs; leaves herbaceous, base rounded to broadly cuneate, densely dentate with teeth not spinescent or sometimes basal teeth spinescent ..... 12. *D. moldavica*
- 17b. Calyx inconspicuously 2-lipped.
- 21a. Middle tooth of upper lip  $\pm$  same shape as lateral teeth, nearly as wide as to wider than lateral teeth.
- 22a. Basal leaves absent; cauline leaves many paired, short petiolate, elliptic to ovate-elliptic, 5–6 mm, 1–3-denticulate; calyx teeth 5, subequal; bracts spinescent-serrate ..... 13. *D. psammophilum*
- 22b. Basal leaves present.
- 23a. Cauline leaves many paired, broadly ovate; verticillasters in long spikes ..... 16. *D. nutans*
- 23b. Cauline leaves 2–6-paired, ovate to triangular-ovate; verticillasters crowded in capitula.
- 24a. Calyx minutely papillate hirtellous, glandular ..... 19. *D. rigidulum*
- 24b. Calyx pubescent to silky-villous, margin white ciliate ..... 20. *D. imberbe*
- 21b. Middle tooth of upper lip of calyx wider than lateral teeth, circular-ovate; lateral teeth broadly lanceolate to narrowly triangular.
- 25a. Basal petiole much shorter than blade; blade ovate to broadly ovate, 0.6–2 cm, incised-dentate.
- 26a. Corolla yellowish white, middle lobe of lower lip not spotted ..... 17. *D. nodulosum*
- 26b. Corolla purple, middle lobe of lower lip purple spotted ..... 18. *D. hoboksarensis*
- 25b. Basal petiole slightly shorter to longer than blade.
- 27a. Corolla slightly exerted ..... 22. *D. velutinum*
- 27b. Corolla 1.5–2 $\times$  as long as calyx.
- 28a. Middle tooth of upper lip of calyx subtruncate.
- 29a. Middle tooth of upper lip of calyx broadly elliptic, obtuse, short spinescent ..... 26. *D. purdomii*
- 29b. Middle tooth of upper lip of calyx trapeziform, truncate, denticulate ..... 27. *D. truncatum*
- 28b. Middle tooth of upper lip of calyx rounded.
- 30a. Leaves abaxially densely white pubescent ..... 21. *D. wallichii*
- 30b. Leaves abaxially sparsely strigose.
- 31a. Petioles of middle cauline leaves 2–6 cm ..... 29. *D. rupestre*
- 31b. Petioles of middle cauline leaves less than 1.2 cm or obsolete.
- 32a. Floral leaves coarsely dentate; corolla 3.3–4 cm ..... 28. *D. grandiflorum*
- 32b. Floral leaves not coarsely dentate; corolla 2–3.5 cm.
- 33a. Leaves abaxially purplish, sparsely pubescent on veins or glabrous ..... 25. *D. bullatum*
- 33b. Leaves abaxially densely puberulent, sparsely floccose-villous on veins.
- 34a. Bracts subcircular, subtire ..... 24. *D. imbricatum*
- 34b. Bracts obovate to rhombic obovate, margin densely ciliate, 1–3-spinescent-serrate ..... 23. *D. microflorum*

**1. *Dracocephalum taliense*** Forrest, Trans. Bot. Soc. Edinburgh 27: 93. 1916.

大理青兰 da li qing lan

Rhizomes with thick cylindric roots. Stems few, erect, ca. 20 cm, sparsely pubescent basally, densely retrorse pubescent at apex. Leaves pinnatisect, palmatisect toward stem apex, sessile or subsessile; leaf blade ovate, 0.9–2.6 $\times$ 1–2 cm, base broadly cuneate, adaxially glabrous, abaxially dense strigose along veins; segments pairs 3 or 4, opposite or subopposite, 2–6 mm from each other along midrib, obliquely spreading at an obtuse angle, linear, 0.7–1.7 cm $\times$ 0.8–1.6 mm, margin entire, revolute when dry, apex obtuse. Verticillasters 2–4-flowered, on 5 or 6 upper nodes; bracts similar to cauline leaves but smaller, ca. 4 mm, with a pair of lobes at middle, pubescent. Calyx 1.4–1.6 cm, densely pubescent, ciliate, 2-lipped to 1/3 its length; teeth equal, narrowly triangular, apex subulate-acuminate; upper lip 3-toothed, with divisions to 4/5 its length. Corolla blue, 2.6–2.8 cm, densely pubescent. Fl. Aug-Sep.

- Grassy hillsides; 2800 m. Yunnan (Dali Xian, Heqing Xian).

Related to *Dracocephalum tanguticum* but verticillasters few flowered in upper leaf axils.

**2. *Dracocephalum calophyllum*** Handel-Mazzetti, Kaiserl. Akad. Wiss. Wien. Math.-Naturwiss. Kl. Anz. 17: 4. 1923.

美叶青兰 mei ye qing lan

*Dracocephalum forrestii* W. Smith var. *calophyllum* (Handel-Mazzetti) Kudô.

Herbs perennial. Stems erect, ca. 35 cm, densely retrorse pubescent, internodes 2–2.5 cm; branches 4–8 cm, upper branches bearing flowers. Leaves pinnatisect, subsessile, triangular-ovate to broadly ovate, 1.5–2.5 $\times$ 1.6–2.4 cm, base very short vaginate, adaxially glabrous, abaxially glabrate; segments in 2–4 pairs, obliquely spreading or subpatent, linear, 0.8–1.5 cm $\times$ 1–1.8 mm. Verticillasters on 4–9 upper nodes of stems and branches; bracts similar to cauline leaves but smaller, 7–10 mm, apex subulate-acuminate, with a pair of lobes. Calyx purple, ca. 1.5 cm, pubescent, ciliolate, 2-lipped to 1/3 its length; teeth subequal, triangular-lanceolate, apex subulate-acuminate, upper lip teeth divisions to 4/5 its length, lower lip teeth divided to base. Corolla blue-purple, 2.8–3.5 cm, pubescent outside. Fl. Sep.

- Grassy hillsides with *Artemisia*; 3100–3200 m. Sichuan, Yunnan.

A variant from Yunnan with long sublanate indumentum was described as var. *smithianum* Keenan (Bailey 5: 31. 1957).

**3. *Dracocephalum propinquum*** W. Smith, Trans. Bot. Soc. Edinburgh 27: 92. 1916.

多枝青兰 *duo zhi qing lan*

Herbs perennial, 20–50 cm. Rhizomes thick, with robust fibrous roots. Stems erect, much branched, densely retrorse puberulent especially on angles, internodes 2–4 cm. Leaves pinnatisect, sessile, ovate, 1.5–3.5×0.6–3 cm, glabrous, adaxially shiny, abaxially puberulent especially on veins, yellow glandular; segments in 1–3 (or 4) pairs, linear, 1–2 mm wide, margin strongly involute. Spikes elongated, 2–10 cm, ± interrupted, of 2–4-flowered verticillasters; floral leaves slightly shorter than flowers, leaflike, numerous. Calyx purplish, narrowly funnelform-tubular, slightly curved, densely puberulent, sparsely yellow glandular, ca. 8 mm, to 1 cm in fruit, 2-lipped 1/3–1/2 its length; teeth lanceolate, apex acuminate, upper lip teeth divisions to 3/4 its length. Corolla purple, ca. 1.5 cm, densely villous, upper lip obovate. Nutlets dark brown, narrowly oblong, triquetrous, papillate. Fl. Sep, fr. Oct.

- Rocky, hillside grasslands; (1700–)1800–3000 m. Sichuan, Yunnan.

4. *Dracocephalum tanguticum* Maximowicz, Bull. Acad. Imp. Sci. Saint Pétersbourg, sér. 3, 27: 530. 1881.

甘青青兰 *gan qing qing lan*

Herbs perennial, fetid. Stems erect, to 55 cm, obtusely 4-angled, retrorse pubescent toward apex, subglabrous basally, internodes 2.5–6 cm. Petiole 3–8 mm; leaf blade pinnatisect, elliptic-ovate to elliptic, 2.6–4(–7.5)×1.4–2.5(–4.2) cm, base broadly cuneate, adaxially glabrous, abaxially glabrous to densely gray pubescent; segments in 2 or 3 pairs, linear, 0.7–1.9(–3) cm×1–2(–3) mm, terminal section 1.4–2.8(–4.4) cm, margin entire, involute. Verticillasters 2–6-flowered, in 5–9 upper stem nodes; floral leaves similar to cauline leaves but much reduced, with 1 pair of segments, 5–7 mm, pubescent, ciliate. Calyx purplish, 1–1.4 cm, densely spreading pubescent, golden glandular, split to 1/3 its length; teeth margin ciliate, apex acute; upper lip teeth broadly lanceolate, middle tooth subequal to lateral lobes, lower lip teeth lanceolate. Corolla purple-blue to dark purple, 2–2.7 cm, pubescent, lower lip 2×as long as upper lip. Fl. Jun-Sep.

- Riverbanks, fields, grassy beaches, dry lake beds, sunny hillsides, pine forest margins; 3200–4700 m. Gansu, Qinghai, Sichuan, Xizang.

- 1a. Stems unbranched; leaves abaxially glabrous ..... 4b. var. *nanum*
- 1b. Stems branched along entire length; leaves abaxially densely hairy.
  - 2a. Stems 35–55 cm; leaves abaxially gray pubescent ..... 4a. var. *tanguticum*
  - 2b. Stems less than 35 cm; leaves abaxially gray tomentulose ..... 4c. var. *cinereum*

4a. *Dracocephalum tanguticum* var. *tanguticum*

甘青青兰 *gan qing qing lan*

Stems 35–55 cm, branched. Leaves abaxially densely gray pubescent. Verticillasters 4–6-flowered.

- Riverbanks, fields, grassy beaches, pine forest margins. Gansu, Qinghai, Sichuan, Xizang.

Used medicinally.

4b. *Dracocephalum tanguticum* var. *nanum* C. Y. Wu & W. T. Wang, Fl. Reipubl. Popularis Sin. 65(2): 591. 1977.

矮生变种 *ai sheng bian zhong*

Stems less than 35 cm, unbranched. Leaves glabrous abaxially. Verticillasters few flowered.

- Dry lake beds, sunny hillsides; 4500–4700 m. Xizang.

4c. *Dracocephalum tanguticum* var. *cinereum* Handel-Mazzetti, Acta Horti Gothob. 13: 343. 1939.

灰毛变种 *hui mao bian zhong*

Stems less than 35 cm, branched along entire length. Leaves densely gray tomentulose abaxially.

- Sunny hillsides; 3200 m. Sichuan (Dawu Xian).

5. *Dracocephalum forrestii* W. Smith, Trans. Bot. Soc. Edinburgh 27: 90. 1916.

松叶青兰 *song ye qing lan*

Rhizomes robust, short, producing dense, fibrous rootlets and numerous stems. Stems erect, 13–28 cm, ± unbranched, retrorse pubescent, nodes numerous, internodes 1–1.4 cm. Leaves pinnatisect, sessile, basal sheath less than 1 mm; leaf blade obovate, 1.6–2.2×1.4–2 cm, adaxially glabrous, abaxially glabrescent; segments in (1 or) 2 or 3 pairs, inserted near midrib base, suberect at an acute angle, linear, 0.8–2.1 cm×1–1.2 mm. Verticillasters 2-flowered, on 5–10 upper nodes, crowded; floral leaves similar to cauline leaves but reduced, with 1 pair of sections, 1/2–2/3 as long as calyx. Calyx 1.6–1.8 cm, densely pubescent, ciliate, 2-lipped 2/5–3/7 its length; teeth lanceolate, apex subulate-acute, upper lip teeth divisions 4/5 its length, teeth subequal but middle tooth slightly longer. Corolla blue-purple, 2.5–2.8 cm, pubescent. Fl. Aug-Sep.

- Rocky, subalpine thickets, grasslands; 2300–3500 m. Yunnan.

6. *Dracocephalum isabellae* Forrest, Notes Roy. Bot. Gard. Edinburgh 8: 211. 1914.

白萼青兰 *bai e qing lan*

Herbs perennial. Stems erect, 30–50 cm, angles retrorse pubescent, nodes numerous, internodes 3–4 cm. Leaves pinnatisect, sessile, with a short sheath basally, broadly ovate to rhombic-ovate, 2–2.8×2.6–3.8 cm, adaxially glabrous, abaxially sparsely pubescent on veins; segments in 2 or 3 pairs, crowded at midrib base, obliquely spreading at an obtuse angle, linear to oblanceolate-linear, 1.3–2 cm×1–2.1 mm, middle lobe 1.7–2.4 cm, margin ciliate, revolute when dry, apex obtuse. Verticillasters 4-flowered, inserted on upper 3 stem nodes, loose; bracts obovate, 0.8–1.2 cm, base cuneate, tripartite; sections lanceolate, densely lanate-ciliate, apex acute. Calyx 1.5–2 cm, 2-lipped 1/5–1/4 its length, densely lanate-villous, margin densely ciliate; upper lip teeth divisions to 1.2 cm; teeth equal, ovate-lanceolate, apex subulate-acuminate; lower lip 2-toothed to lip base, teeth lanceolate-triangular. Corolla blue-purple, 3.5–4.2 cm, pubescent. Fl. Jul-Aug.

- Rocky grasslands among forests; 3000–4000 m. Yunnan (Zhongdian Xian).

This is the largest-flowered species in the group of pinnatisect-leaved species.

7. *Dracocephalum hookeri* C. B. Clarke ex J. D. Hooker, Fl. Brit. India 4: 666. 1885.

长齿青兰 *chang chi qing lan*

Stems slightly scabrid. Leaves sessile, ca. 2.5 cm, pinnatisect, blade sections narrowly linear, few, spreading, margin involute. Verticillasters in dense spikes 5–8×ca. 2.5 cm, interrupted basally; floral leaves pinnatisect. Flowers sessile. Calyx 1.3–1.9 cm, slightly scabrid, tube erect or curved; teeth equal, ca. as long as tube, lanceolate, apex acute. Corolla 2.5–4 cm, tube narrow, throat moderately dilated. Nutlets oblong, 2.5 mm, smooth.

- Hillsides; 4500 m. Xizang.

Only doubtfully different from *Dracocephalum tanguticum* and often reduced to synonymy.

**8. *Dracocephalum bipinnatum*** Ruprecht, Mém. Acad. Imp. Sci. Saint Pétersbourg 14: 65. 1869.

羽叶枝子花 *yu ye zhi zi hua*

*Dracocephalum bipinnatum* var. *biflorum* C. Y. Wu; *D. bipinnatum* var. *brevilobum* C. Y. Wu & W. T. Wang; *D. ruprechtianum* Regel; *D. ruprechtii* Regel.

Rhizomes 5–10 mm in diam. Stems 15–30 cm, sparsely retrorse pubescent, densely so at apex. Mid cauline leaves pinnatisect to pinnately lobed; blade ovate to lanceolate, 1.5–2.5×0.7–1.2 cm, papery when dry, sparsely pubescent along veins, base cuneate, apex obtuse; segments in 1–4 pairs, linear, 4–8 mm, terminal lobe 10–14×ca. 1.5 mm, entire to few lobed. Verticillasters 2–4-flowered, in 2–5 upper stem nodes; bracts obovate-elliptic or lanceolate, 4–8 mm, pubescent, ciliate, base cuneate, margin 2–4-serrulate per side, teeth apex with a spine 1–2 mm. Calyx 1.4–1.7 cm, pubescent, ciliate, golden glandular, 2-lipped to 1/2 its length; upper lip teeth divisions 1/4–1/3 its length, teeth broadly ovate, subequal, apex spinescent, with spines ca. 0.8 mm; teeth of lower lip broadly lanceolate, apex spinescent. Corolla blue-purple, 3–3.8 cm, pubescent. Fl. Aug-Sep.

Rocky crevices near streams, grasslands, hillsides, moraines, semideserts; 1900–2600 m. Xinjiang, Xizang [India (Kashmir), Kazakhstan, Kyrgyzstan, Tajikistan].

**9. *Dracocephalum heterophyllum*** Benthams, Labiat. Gen. Spec. 738. 1835.

白花枝子花 *bai hua zhi zi hua*

*Dracocephalum acanthoides* Edgeworth ex Benthams; *D. kaschgaricum* Ruprecht; *D. pamiricum* Briquet.

Stems 10–15(–30) cm, densely retrorse pubescent. Petiole 2.5–6 cm, reduced in upper leaves; leaf blade broadly to narrowly ovate, 1.3–4×0.8–2.3 cm, adaxially slightly pubescent or subglabrous, base cordate, margin shallowly crenate or serrate, ciliolate, teeth of upper cauline blades spinescent, apex obtuse to rounded. Verticillasters 4–8-flowered, in apical, abbreviated internodes; bracts obovate-spatulate to oblanceolate, to 8 mm, margin 3–8-spinescent-serrulate per side, with spines 2–4 mm, sparsely minute hairy, ciliolate. Calyx greenish, 1.5–1.7 cm, sparsely pubescent, densely so basally, margin ciliolate, 2-lipped to nearly 1/2 its length; upper lip teeth divisions to 2/3 its length, teeth lanceolate, apex spinescent. Corolla white, (1.8–)2.2–3.4 (–3.7) cm, densely white or yellowish pubescent. Fl. Jun-Aug.

Subspecies *ovalifolium* A. L. Budantzev [Bot. Zhurn. (Moscow & Leningrad) 72: 93. 1987] was described from Shanxi.

**10. *Dracocephalum peregrinum*** Linnaeus, Cent. Pl. II. 20. 1756.

刺齿枝子花 *ci chi zhi zi hua*

*Dracocephalum politovii* Gandoger.

Stems erect, 15–25 cm, minutely retrorse hairy, branched basally. Petiole of cauline leaves 2–3 mm; leaf blade ovate-lanceolate to lanceolate, 1.5–2.2 cm×3.5–5.5 mm, ± leathery when dry, sparsely minute hairy, base cuneate, margin ciliolate, short spinescent-denticulate with spines 0.4–0.8 mm, apex acute, short spinescent. Verticillasters 4–6-flowered, in 4–7 upper nodes; bracts elliptic-ovate, 3–6 mm, margin 1- or 2-spinescent-denticulate, with spines ca. to 1 mm. Calyx purple, 1–1.3 cm, minutely hairy, ciliolate, conspicuously 2-lipped to ca. 1/2 its length; upper lip teeth divisions 1/4 its length, teeth subequal, triangular-ovate, apex with spines slightly shorter than teeth; lower lip teeth divisions more than 1/2 its length, teeth lanceolate, apex needlelike-acuminate. Corolla blue-purple, 2.2–2.8 cm, sparsely pubescent. Fl. Jun-Aug.

Rocky crevices on alpine grasslands. ? Gansu, Xinjiang (Toli Xian) [Kazakhstan, Mongolia, Russia].

**11. *Dracocephalum breviflorum*** Turritt, Bull. Misc. Inform. 1922: 154. 1922.

短花枝子花 *duan hua zhi zi hua*

Stems erect or ascending, minutely hispid. Leaves elliptic-lanceolate, to 3×1.4 cm, adaxially minutely hispid, abaxially pilose, lateral veins in 5–7 pairs, base rounded to subcordate, margin crenate-dentate, apex acute to subacute. Verticillasters in spicate capitula ca. 3 cm; bracts ± leafy, margin ± entire; bracteoles linear-lanceolate, 6–11 mm, apex acute, glandular hispidulous. Calyx minutely hispid, glandular, 2-lipped nearly to base, tube ca. 1 mm; upper lip ca. 6.5 mm, teeth lanceolate, ca. 3.5 mm, apex acuminate. Corolla purple, minutely hispid; tube ca. 1 cm, throat dilated; upper lip with lobes subcircular, ca. 2 mm; lower lip 3-lobed, middle lobe ca. 3×4.5 mm. Fl. Jul.

- Alpine grasslands; 4000 m. Xizang (Mt. Everest?).

Of uncertain affinity; related to *Dracocephalum heterophyllum* in the original description but clearly different from it.

**12. *Dracocephalum moldavica*** Linnaeus, Sp. Pl. 2: 595. 1753.

香青兰 *xiang qing lan*

Herbs annual. Stems numerous, (6–)22–40 cm, erect or ascending, minutely retrorse hairy, purplish. Basal cauline leaves withering early; petiole as long as blade, shorter upward; leaf blade ovate-triangular, base cordate, margin remotely crenate, apex rounded; upper blades lanceolate to linear-lanceolate, 1.4–4×0.4–1.2 cm, yellow glandular, veins sparsely minute hairy, base rounded to broadly cuneate, margin triangular-dentate or sparsely serrate, with basal teeth sometimes lobelike, apex long spiny, obtuse. Verticillasters 4-flowered, loose, in 5–12 upper nodes of stems and branches; bracts oblong, shorter to slightly longer than calyx, margin 2- or 3-spinescent-denticulate, with spines 2.5–3.5 mm, sparsely appressed hairy. Pedicel 3–5 mm, horizontal after anthesis.

Calyx 8–10 mm, golden glandular, pubescent especially basally, purple veined, 2-lipped to 1/2 its length; upper lip teeth divisions 1/4–1/3 of lip, teeth subequal, triangular-ovate, apex acute. Corolla bluish purple, 1.5–2.5(–3) cm, dilated beyond throat, white pubescent outside; upper lip short navicular, ca. 1/4 as long as tube; middle lobe of lower lip dark purple spotted. Nutlets oblong, ca. 2.5 mm, apex truncate, smooth.

Dry hills, stony riverbanks, valleys; 200–2700 m. Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shanxi [India (Kashmir), Russia, Tajikistan, Turkmenistan; Europe].

Source of an essential oil, sometimes cultivated.

**13. *Dracocephalum psammophilum*** C. Y. Wu & W. T. Wang, Fl. Reipubl. Popularis Sin. 65(2): 592. 1977.

沙地青兰 sha di qing lan

*Dracocephalum fruticosum* Stephan subsp. *psammophilum* (C. Y. Wu & W. T. Wang) H. C. Fu & S. Chen.

Rhizomes robust, woody, ca. 1 cm in diam. Stems purplish, erect, 6–7 cm, ca. 1 mm in diam., densely retrorse minute hairy. Cauline leaves petiole ca. 0.3 mm; leaf blade elliptic to ovate-elliptic, 5–6×2.5–3.2 mm, ± succulent, gray-green when dry, base rounded to obtuse, margin of mid cauline leaves 1–3-denticulate or 1–3-denticulate-serrulate, apex rounded to obtuse. Verticillasters on 3 or 4 upper stem nodes, in 1–1.5 cm spikes; floral leaves bractlike, margin spinescent-denticulate, with spines 2.5–3 mm; bracts elliptic, oblong, or spatulate, 2.5–3 mm, margin 1–3-spinescent-denticulate, with spines 0.5–1.5 mm. Calyx ca. 7.5 mm, campanulate-tubular, densely minute hairy, glandular, margin ciliolate, glabrous inside, 2-lipped to 1/3 calyx length, tube ca. 5 mm; upper lip teeth divisions to 2/3 its length, teeth triangular, 1.5–1.8 mm, apex acute, purple when dry, middle tooth of upper lip slightly wider than lateral teeth; lower lip 2-toothed to base, teeth lanceolate-triangular, apex acute. Corolla blue-purple, 1.3–1.5 cm, densely pubescent; tube slender, ca. 1 mm in diam., abruptly dilated to 3 mm wide; upper lip broadly elliptic, ca. 3 mm, lower lip ca. 3 mm. Fl Jun.

• Deserts. Ningxia.

A close relative of *Dracocephalum fruticosum* and recently reduced to a subspecies of it.

**14. *Dracocephalum fruticosum*** Stephan ex Willdenow, Sp. Pl. 3: 152. 1800.

线叶青兰 xian ye qing lan

*Dracocephalum linearifolium* C. H. Hu.

Rhizomes robust, woody, 8–10 mm in diam. Stems yellowish but base sometimes orange, 6–9 cm, slender, minutely retrorse hairy, especially apically and on nodes. Leaves sessile or subsessile, linear, 5–7×0.8–1.2 mm, margin entire or 1–3-spinescent-denticulate, sparsely minute hairy. Verticillasters on 3–5 upper nodes of stems and branches, in spikes ca. 1 cm; bracts linear to spatulate, ca. 4 mm, margin 2- or 3-spinescent-denticulate, with spines 3–3.5(–4) mm. Pedicel 1–1.4 mm. Calyx purple or purplish, tubular-

campanulate, ca. 1.1 cm, minutely retrorse hairy, margin ciliolate, sparsely villous inside; tube ca. 7 mm, apical 1/3 slightly curved; limb 2-lipped to ca. 1/3 its length; upper lip teeth divisions nearly to lip base, teeth subequal, triangular, apex acuminate; lower lip teeth divided to lip base, as long as those of upper lip but narrower. Corolla purplish red when dry, white villous; tube slender, exerted portion dilated; upper lip lobes acute; lower lip longer, 3-lobed. Fl. Jun-Jul.

Deserts. Ningxia (Holan Shan) [Mongolia, Russia].

**15. *Dracocephalum integrifolium*** Bunge, Fl. Altaic. 2: 387. 1830.

全缘叶青兰 quan yuan ye qing lan

Rhizomes ca. 5 mm in diam. Stems purple-brown, numerous, unbranched, erect or prostrate, 17–37 cm, minutely retrorse hairy. Leaves subsessile, lanceolate to ovate-lanceolate, 1.5–3 cm, ± succulent, glabrous, base broadly cuneate to rounded, margin entire, ciliate, apex obtuse to acute. Verticillasters on 3–6 upper nodes, in capitula; bracts obovate to obovate-lanceolate, 3.5–8 mm, margin ciliate, 4- or 5-spinescent-serrulate, spines 2.5–3 mm. Calyx red-purple, 1–1.7 cm, densely minute hairy at base, sparsely hairy upward, ciliate, 2-lipped to ca. 1/3 its length; teeth subequal, apex short spinescent; middle tooth of upper lip ovate, slightly longer than lateral teeth, ca. 2×as wide, lateral teeth lanceolate; teeth of lower lip lanceolate, slightly narrower than lateral teeth of upper lip. Corolla blue-purple, 1.4–1.7 cm, densely white villous outside. Nutlets brown, oblong, ca. 2 mm, smooth. Fl. Jul-Aug.

*Abies-Picea* forests, grasslands; 1400–2500 m. Xinjiang [Kazakhstan, Kyrgyzstan, Russia].

Used medicinally for bronchitis.

**16. *Dracocephalum nutans*** Linnaeus, Sp. Pl. 2: 596. 1753.

垂花青兰 chui hua qing lan

*Dracocephalum microphyllum* Turczaninow; *D. nutans* var. *alpinum* Karelina & Kirilow; *Zornia nutans* (Linnaeus) Moench.

Stems single or numerous, basally unbranched or few branched, 16–55 cm, densely retrorse puberulent at apex, sparsely puberulent or glabrate basally. Petiole 2.5–5 cm; leaf blade broadly ovate, 0.8–23×0.8–23 cm, pubescent, base cordate, subtruncate, or broadly cuneate, margin acute serrate or denticulate, apex obtuse or acute. Verticillasters 8–12-flowered, in upper leaf axils; bracts elliptic to obovate, 3–5 mm, margin entire, ciliate, apex acute. Calyx purplish, 9–10 mm, veins pubescent, margin ciliate, indistinctly 2-lipped 1/4–1/3 its length; middle tooth of upper lip obovate, apex short spinescent, 2.5–3×wider than other teeth, lateral teeth lanceolate; lower lip teeth lanceolate, apex spinescent-acuminate, with spines 1–2 mm. Corolla blue-purple, 1.2–1.9 cm, pubescent, upper lip slightly shorter than lower lip. Fl. Jul-Sep.

Sunny slopes, valleys, *Larix* forests; 1200–2600 m. Heilongjiang, Nei Mongol, Xinjiang [Afghanistan, India, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan; Europe].

**17. *Dracocephalum nodulosum*** Ruprecht, Mém. Acad. Imp. Sci. Saint Pétersbourg 14: 65. 1869.

多节青兰 duo jie qing lan

Rhizomes ascending or horizontal. Stems ascending, 10–30 cm, purplish at apex, retrorse pubescent. Petiole much shorter than blade; leaf blade broadly ovate to ovate, 0.6–2×0.4–1.5 cm, pubescent especially along veins, base abruptly cuneate to shallowly cordate, margin deeply crenate-dentate, apex obtuse. Verticillasters in subellipsoid spikes 2–6×2 cm; bracts obtriangular, margin 3–5-spinescent-dentate, with spines 2–4 mm. Calyx ca. 1 cm, middle tooth of upper lip ca. 2×wider than lanceolate lateral teeth, teeth of lower lip lanceolate. Corolla yellowish white, ca. 1.5 cm, densely pubescent outside. Nutlets oblong, ca. 3×1.2 mm. Fl. Jul–Aug.

- Alpine and subalpine rocky slopes; 3300 m. Xinjiang.

18. *Dracocephalum hoboksarensis* G. J. Liu, Bull. Bot. Res. 5(3): 163. 1985.

和布克赛尔青兰 he bu ke sai er qing lan

Herbs perennial. Stems purple-red, 15–25 cm, sparsely white puberulent. Petiole purple, short, leaf blade oblong to ovate, 1.4–2.5×1.3–1.8 cm, densely white puberulent, sparsely yellow glandular, base broadly cuneate, apex rounded. Verticillasters in oblong spikes 4–6 cm; bracts obovate, shorter than calyx, apex 4-dentate, sparsely puberulent, purple on teeth, cuneate, base attenuate, apex awned. Calyx purple, tubular, mouth slightly curved, ca. 1.4 cm, densely puberulent, inconspicuously 2-lipped; upper lip middle tooth obovate, ca. 4×3 mm, apex short aristate; other teeth lanceolate, ca. 4×1.5 mm, apex attenuate-aristate. Corolla purple, ca. 2.2 cm, densely white puberulent; upper lip straight, ca. 3 mm; middle lobe of lower lip reniform, purple spotted at middle. Nutlets unknown. Fl. Jun–Jul.

- Gravelly mountain slopes; 1200 m. Xinjiang (Hoboksar Xian).

Differing from *Dracocephalum nodulosum* by its large purple corollas.

19. *Dracocephalum rigidulum* Handel-Mazzetti, Oesterr. Bot. Z. 88: 306. 1939.

微硬毛建草 wei ying mao jian cao

Rhizomes woody, densely covered by remains of stems and petioles. Stems erect or ascending, 20–30 cm, slender, unbranched, glabrous or sparsely minute hairy along angles. Basal leaves few, ± rosulate; petiole purplish, ca. 2×as long as blade, densely ciliate, base dilated; leaf blade triangular-ovate to ovate, 0.5–1.8×0.5–1.8 cm, papery, adaxially glabrous or sparsely strigose, abaxially densely strigose along elevated veins and margin, base truncate or shallowly cordate, margin crenate or dentate except base, apex rounded to subacute; cauline leaves in 3–6 pairs, short petiolate, upper leaves subsessile, narrowly acicular-triangular toothed. Verticillasters 5–10(–20)-flowered, 2 or 3 in subcapitate spikes; bracts subsessile, lower broadly ovate, upper lanceolate, ca. 1 cm, spinescent-triangular with spines to 5 mm; bracteoles subulate, ca. 1/2 as long as calyx tube, awned. Calyx 1.2–1.5 cm, base narrow, mouth 3–4 mm wide, finely papillate hirtellous, glandular; teeth subequal, ca. 1/2 as long as tube, lanceolate, apex awned-acuminate, 1–1.5 mm. Corolla purple or blue-purple, 2–2.5 cm, white villous; upper lip slightly curved, 2-lobed; lower lip nearly as long as upper lip, 3-lobed. Fl. Jun (specimens not seen).

- Nei Mongol.

20. *Dracocephalum imberbe* Bunge, Verz. Altai Pfl. 50. 1836.

无髭毛建草 wu zi mao jian cao

Rhizomes 3.5–9 mm in diam. Stems erect or ascending, unbranched, ca. 25 cm, sparsely minute hairy and villous, rarely glabrescent basally, densely retrorse hairy and villous at apex. Basal leaves numerous; petioles 3–12 mm, sparsely retrorse pubescent; blade circular-ovate to reniform, 1.7–3.7×1.5–4 cm; blade of mid stem leaves ovate to reniform, sparsely pubescent along veins, base cordate, margin undulate-crenate. Verticillasters few, crowded in capitula; bracts spatulate-obovate, ca. 6–7.5 mm, margin 1- or 2-serrate, sparsely pubescent, ciliate, teeth spinescent-triangular to spinescent-lanceolate, with spines 1.5–2.5 mm. Calyx purplish, 1.2–1.5 cm, pubescent to silky-villous, margin white ciliate, 2-lipped to 1/4 its length; upper lip teeth subequal, ovate-triangular, ca. 3 mm, apex acute; lower lip teeth narrower than those of upper lip, ca. 3 mm. Corolla blue-purple, 2.5–2.7 cm, villous. Fl. Jul–Aug.

Grassy slopes; 2400–2500 m. Xinjiang [Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan].

21. *Dracocephalum wallichii* Sealy, Bot. Mag. 164: t. 9657. 1944.

美花毛建草 mei hua mao jian cao

Rhizomes with robust, fibrous roots. Stems erect or ascending, 24–50 cm, sparsely pubescent basally, densely retrorse pubescent at apex, with 2–4 nodes below dense spikes. Petiole of basal leaves 4.5–9(–22.5) cm, that of cauline leaves as long as blade to sometimes absent; leaf blade ovate to broadly ovate, 2–5.5(–7)×1.5–4.2(–7) cm, adaxially sparsely pubescent or glabrous, abaxially densely pubescent or occasionally glabrous throughout, base cordate, apex rounded to obtuse. Verticillasters in terminal capitula or interrupted spikes 3–3.5 cm; floral leaves sessile, ovate; bracts green-purple, purple-black veined, rhombic-obovate to obovate, as long as calyx, margin acute or short spinescent to 3–6-serrate, veins and margin densely villous. Calyx 1.4–1.7 cm, conspicuously purple veined at base, tinged purple black at apex, villous, ciliate, 2-lipped 1/3–1/2 its length; upper lip middle tooth obovate to ovate, slightly wider to 2×as wide as lateral teeth, margin entire to serrulate, apex short acuminate; lateral teeth of upper lip ovate-triangular, apex acute; lower lip teeth lanceolate. Corolla dark purple, 2–3 cm, pubescent, tube 3–6 mm wide; upper lip navicular, ca. 5 mm; lower lip spreading, with dark spots, 3-lobed; middle lobe of lower lip obovate, apex emarginate. Nutlets dark brown, elliptic-obovoid, flattened, ca. 3.5 mm. Fl. Jul–Sep.

- Alpine shrubland margins, meadows, thicket margins; 4000–4700 m. Sichuan, Xizang.

A widespread species in the Himalaya where it is extremely variable. This and the following 8 species (21–29) are all clearly related and not always readily distinguishable.

- 1a. Verticillasters in capitula on stem apices; corolla to 3 cm×6 mm ..... 21b. var. *platyanthum*
- 1b. Verticillasters in interrupted spikes on stem apices and 2 capitula on apices of 2 lateral branches; corolla 2–2.5 cm×3–6 mm.
- 2a. Verticillasters only in interrupted spikes on stem apices; middle tooth of upper lip of calyx ovate, entire ..... 21a. var. *wallichii*

- 2b. Verticillasters in interrupted spikes on stem apices and capitula on apices of lateral branches; middle tooth of upper lip of calyx elliptic-obovate to obovate, few serrulate  
..... 21c. var. *proliferum*

**21a. *Dracocephalum wallichii* var. *wallichii***

美花毛建草 mei hua mao jian cao

*Dracocephalum calanthum* C. Y. Wu, p.p.; *D. speciosum* Benth.

Verticillasters only in interrupted spikes on stem apices. Middle tooth of upper lip of calyx ovate, margin entire. Corolla 2–2.5 cm×3–6 mm.

- Alpine shrubland margins, meadows; 4700 m. Xizang.

**21b. *Dracocephalum wallichii* var. *platyanthum* C. Y. Wu & W. T. Wang, Fl. Reipubl. Popularis Sin. 65(2): 593. 1977.**

宽花变种 kuan hua bian zhong

Verticillasters in terminal capitula. Corolla to 3 cm×□□6 mm.

- Alpine meadows. Xizang.

**21c. *Dracocephalum wallichii* var. *proliferum* C. Y. Wu & W. T. Wang, Fl. Reipubl. Popularis Sin. 65(2): 593. 1977.**

复序变种 fu xu bian zhong

Verticillasters in spikes and capitula; spikes interrupted, 4–6 cm, on stem apices; capitula 2.5–3 cm, on apices of lateral branches. Middle tooth of upper lip of calyx elliptic-obovate to obovate, margin few serrulate. Corolla ca. 2□×□ as long as calyx, tube ca. 3 mm wide.

- Thicket margins; 4000 m. Sichuan.

**22. *Dracocephalum velutinum* C. Y. Wu & W. T. Wang, Fl. Yunnan. 1: 588. 1977.**

绒叶毛建草 rong ye mao jian cao

Rhizomes short, 7–8 mm in diam. Stems ascending to suberect, 10–15 cm, densely retrorse pubescent, with 2 or 3 nodes below inflorescences. Petiole of basal leaves 2–6.7 cm, that of cauline leaves to 2.1 cm; leaf blade ovate to circular-ovate, 1.5–5(–6.5)×1.8–4 cm, adaxially subglabrous, abaxially densely white tomentulose or silky-pubescent along veins, base cordate to deeply so, margin crenate, apex rounded. Verticillasters in ca. 3 mm capitula; bracts purple-green, rhombic-obovate, to obovate, to 2 cm, densely villous along veins, margin ciliate, acute or short spinescent to 3–5-serrate. Calyx 1.8–2 cm, silky-villous along veins, sparsely villous inside, margin lanate-ciliate, 2-lipped to 1/2 its length; upper lip middle tooth elliptic-obovate or subtrapeziform, 3–4× as wide as lateral teeth, margin entire or irregularly denticulate-spinescent, apex truncate-rounded to rounded; lateral teeth lanceolate, apex spinescent-acuminate; lower lip teeth similar to lateral teeth of upper lip but narrower. Corolla dark blue, 2–2.4 cm, pubescent; upper lip ca. 5 mm, lower lip ca. 2 × as long as upper lip. Fl. Jul–Aug.

- Grassy sloping valleys, rocky areas; 3400–4000 m. Yunnan.

Related to *Dracocephalum bullatum* but with smaller corollas and ± dense indumentum on abaxial leaf surfaces.

- 1a. Apex of middle tooth of adaxial calyx lip truncate-rounded, margin irregularly denticulate  
..... 22a. var. *velutinum*  
1b. Apex of middle tooth of adaxial calyx lip rounded, margin entire ..... 22b. var. *intermedium*

**22a. *Dracocephalum velutinum* var. *velutinum***

绒叶毛建草 rong ye mao jian cao

*Dracocephalum calanthum* C. Y. Wu, p.p.

Apex of middle tooth of adaxial calyx lip truncate-rounded, margin irregularly denticulate.

- Grassy sloping valleys; 3400–4000 m. Yunnan.

**22b. *Dracocephalum velutinum* var. *intermedium* C. Y. Wu & W. T. Wang, Fl. Yunnan. 1: 588. 1977.**

圆齿变种 yuan chi bian zhong

*Dracocephalum calanthum* C. Y. Wu, p.p.

Apex of middle tooth of adaxial calyx lip rounded, margin entire.

- Rocky areas; 3800–3900 m. Yunnan (Deqen Xian).

**23. *Dracocephalum microflorum* C. Y. Wu & W. T. Wang, Fl. Reipubl. Popularis Sin. 65(2): 593. 1977.**

小花毛建草 xiao hua mao jian cao

Rhizomes 3–6 mm in diam. Stems red-purple, 1 or 2, ascending, 10–15 cm, densely retrorse puberulent, with 1–3 internodes below inflorescence. Basal leaves 2–6; petiole to 5 cm; leaf blade ovate to narrowly ovate, 1.2–3×1–2 cm; cauline blades on short petioles, subcircular, smaller, adaxially glabrous, abaxially sparsely appressed white villous, veins slightly elevated abaxially, base cordate, margin densely involute serrate, apex rounded. Verticillasters in terminal capitula 2.5–3.5 cm; bracts obovate to rhombic-obovate, slightly shorter than calyx, margin densely ciliate, finely spinescent or with 1–3 serrate teeth. Calyx purplish red, ca. 1.2 cm, sparsely villous, ciliate, 2-lipped to nearly its entire length; upper lip middle tooth broadly obovate, ca. 2× as wide as lanceolate lateral teeth, apex short acuminate; lower lip teeth similar to lateral teeth of upper lip. Corolla blue, 2–2.2×0.3 cm, pubescent; upper lip ca. as long as lower lip; lower lip 3-lobed, middle lobe obcordate, lateral lobes small. Fl. May–Jun.

- Alpine meadows; 4800 m. Sichuan (Muli Xian).

Closely related to *Dracocephalum imbricatum* but with smaller serrate bracts.

**24. *Dracocephalum imbricatum* C. Y. Wu & W. T. Wang, Fl. Yunnan. 1: 588. 1977.**

覆苞毛建草 fu bao mao jian cao

Rhizomes ca. 5 mm in diam. Stems unbranched, ascending, 12–18 cm, densely retrorse scaly puberulent, sparsely villous along angles. Basal leaves ca. 5; petiole slightly shorter to longer than blade; leaf blade broadly triangular-ovate to narrowly ovate, (0.5–)1.5–3.5×2–2.5 cm, adaxially subglabrous, slightly scabrid, abaxially sparsely white floccose-villous, densely puberulent along veins, base cordate, margin crenate, apex rounded. Verticillasters in terminal spikes 4–5.5 cm; bracts dark purple-blue, overlapping, subcircular, margin subentire, apex rounded but

some-times mucronate, subglabrous, margin densely white ciliate, inconspicuously veined. Calyx ca. 1.6 cm, densely villous, ciliate, 2-lipped to ca. 1/2 its length; upper lip middle tooth oblate, to 8 mm wide, apex subtruncate, mucronate, lateral lobes lanceolate, apex acuminate; lower lip teeth similar to lateral teeth of upper lip. Corolla dark purple, ca. 2.5 cm, densely pubescent; lower lip ca. 1 cm, 3-lobed, middle lobe narrowly obovate, to 6 mm, apex emarginate; lateral lobes obliquely triangular, ca. 5 mm, apex somewhat rounded. Fl. Sep.

- Alpine slopes; 4000 m. Yunnan (Zhongdian Xian).

Related to *Dracocephalum wallichii*, but differs in the subcircular overlapping bracts.

**25. *Dracocephalum bullatum*** Forrest ex Diels, Notes Roy. Bot. Gard. Edinburgh 5: 238. 1912.

皱叶毛建草 *zhou ye mao jian cao*

Rhizomes short, thick, with thick fibrous rootlets. Stems red-purple, ascending or erect, 9–18 cm, obtusely 4-angled, densely retrorse minute hairy, nearly unbranched. Basal leaves petiole to 4 cm; leaf blade ovate to elliptic-ovate, upper blades ovate to circular-ovate, 2.5–5×1.8–2.5(–4) cm, papery, adaxially glabrous, abaxially purplish, sparsely pubescent along veins or glabrous, veins elevated abaxially, base cordate, margin crenate, apex rounded or obtuse. Verticillasters in terminal, condensed capitula; floral leaves ovate to circular-ovate; bracts obovate to flabellate-obovate, subequal to calyx, margin densely ciliate, 3–6-serrate, teeth obtuse to spinescent. Calyx reddish purple, 1.5–1.8(–2) cm, sparsely villous, ciliate, 2-lipped to ca. 1/3 its length; upper lip middle tooth obovate, ca. 2×as wide as lateral teeth, apex acute, lateral teeth lanceolate, apex acute; lower lip teeth similar to lateral teeth of upper lip. Corolla blue-purple, 2.8–3.5×1–1.2 cm, villous; upper lip ca. 1/2 as long as lower lip, ca. 1.2 cm wide, 2-lobed; lower lip with dark spots, 3-lobed, middle lobe elongated, ca. 8 mm wide. Fl. Jul-Aug.

- Stony alluvial fans in limestone mountains; 3000–4500 m. Yunnan.

A handsome species with large showy bracts and flowers.

**26. *Dracocephalum purdomii*** W. Smith, Notes Roy. Bot. Gard. Edinburgh 9: 105. 1916.

岷山毛建草 *min shan mao jian cao*

*Dracocephalum grandiflorum* Linnaeus var. *purdomii* (W. Smith) Kudô.

Stems 7–15 cm, ascending, villous. Petiole of basal leaves 3–4 cm, cauline leaves 2-paired, similar to basal leaves but smaller, short petiolate or subsessile, sparsely hairy; leaf blade ovate-oblong, to 3×1.5 cm, sparsely strigose, base truncate to cordate, margin crenate, apex subrounded. Verticillasters in terminal capitula ca. 3 cm in diam.; bracts oblanceolate to narrowly oblong, 8–10 mm, margin ciliate, 5-serrate at apex, teeth long spinescent. Calyx 1.1–1.5 cm, glabrous, tube erect, teeth equal; adaxial middle tooth broadly elliptic, ca. 3 mm wide, apex obtuse, short spinescent or sometimes gradually wider with apex irregularly spinescent-serrulate, ciliate; other 4 teeth triangular-lanceolate, apex spinescent-acuminate, sparsely ciliate or glabrous. Corolla dark blue, 2.2–2.5 cm, densely white villous, tube base narrower, to 5–7 mm wide at apex; upper lip 2-lobed; lower lip spotted, 3-lobed, middle lobe elongated. Fl. Jul-Aug.

- Stony areas in alpine valleys; 2300–3300 m. Gansu, Sichuan.

**27. *Dracocephalum truncatum*** Sun ex C. Y. Wu, Acta Phytotax. Sin. 8: 25. 1959.

截萼毛建草 *jie e mao jian cao*

Herbs perennial. Stems to 30 cm, sparsely retrorse floccose-pilose, nodes 2–4. Basal leaves numerous, upper leaves subsessile, gradually becoming bracts; petiole of basal leaves slender, 3–4×as long as blade; leaf blade triangular-cordate, 2–5×1.5–4.5 cm, adaxially sparsely villous and finely papillate, abaxially ± purplish, sparsely villous along veins, veins conspicuous abaxially, base cordate, margin crenate, ciliolate, apex subrounded. Verticillasters in terminal capitula; bracts sessile, ovate-lanceolate to subcircular, to 1 cm, margin incised, ciliate, apex short spinescent. Calyx tubular-campanulate, slightly incurved, 1.2–1.5 cm×4 mm, sparsely villous, ciliolate outside, glabrous inside, 5-toothed to 1/3 its length; middle tooth of upper lip trapeziform, ca. 4×as wide as other teeth, apex ± truncate, 9-denticulate, slightly spinescent; lateral teeth of upper lip narrowly triangular; teeth of lower lip 2, lanceolate. Corolla ca. 2.5 cm, white floccose-villous; upper lip shorter than lower lip, apex 2-lobed; lower lip to 1 cm, 3-lobed, middle lobe ca. 2×as wide as lateral lobes. Fl. Jul.

- Rocky crevices in streamside banks; 2700 m. Gansu (Lintao Xian, Xiahe Xian).

Possibly only a form of *Dracocephalum purdomii*; some specimens from Lu-pan Shan (Gansu Province) have extremely variable middle teeth on the adaxial calyx lips.

**28. *Dracocephalum grandiflorum*** Linnaeus Sp. Pl. 2: 595. 1753.

大花毛建草 *da hua mao jian cao*

*Dracocephalum altaianse* Laxmann; *D. turkestanicum* Gandoger.

Rhizomes oblique, 5–10 mm in diam. Stems 15–26 cm, unbranched, densely retrorse pubescent, glabrescent basally. Petiole of basal leaves 2.5–6 cm, sparsely spreading villous; leaf blade oblong-elliptic, rarely ovate, 1.8–4.8×1.4–3.6 cm, base cordate, margin crenate, apex obtuse; petioles of mid cauline leaves sheathlike, 4–7 cm; leaf blade broadly ovate, 2.2–3.2 cm, sparsely appressed pubescent, base cordate to broadly cuneate, margin crenate-serrate or sometimes serrate. Verticillasters in terminal capitula; floral leaves coarsely dentate; bracts narrowly lanceolate to obovate, ca. 1.5×1.2 cm, margin silky ciliate, 1–4-serrate, apex acute-acuminate to spinescent, spines 2–3 mm. Calyx purplish at apex, 1.5–2 cm, villous, golden glandular, 2-lipped to ca. 1/2 its length; upper lip middle tooth semioblong, ca. 1.5×as wide as lateral teeth, apex obtuse, with spines ca. 0.5 mm; lateral teeth of upper lip lanceolate, apex acute; lower lip 2-toothed to lip base, teeth similar to lateral teeth of upper lip but narrower. Corolla blue, 3–4×1–1.2 cm, villous outside; lower lip wide, base dark maculate, white villous. Fl. Jul-Aug.

- Grassy slopes; 2200–2900 m. Nei Mongol, Xinjiang [Kazakhstan, Kyrgyzstan, Mongolia, Russia, Tajikistan].

**29. *Dracocephalum rupestre*** Hance, J. Bot. 7: 166. 1869.

毛建草 *mao jian cao*

Rhizomes to 1 cm in diam. Stems purplish, numerous, ascending, 15–42 cm, unbranched, sparsely retrorse pubescent. Basal leaves numerous, mostly persistent after



anthesis; petiole 3–15 cm, white patent-villous; leaf blade triangular-ovate, 1.4–5.5×1.2–4.5 cm; mid cauline leaves petiole 2–6 cm, blade 2.2–3.5 cm, sparsely villous, base cordate, margin crenate-serrate, apex obtuse. Verticillasters in terminal capitula or rarely spikes to 9 cm; floral leaves reduced, sessile or with sheathlike petiole 4–8 mm; bracts lanceolate to obovate, 0.7–1.6 cm, margin sparsely pubescent, ciliate, 2–6-spinescent-serrulate with spines to 2 mm. Calyx purplish, 2–2.4 cm, pubescent, ciliate, 2-lipped to 2/5 its length; upper lip with teeth divisions to lip base, middle tooth obovate-elliptic, ca. 2×as wide as lateral teeth, apex short acute-acuminate; lateral teeth lanceolate, apex acute-acuminate; lower lip teeth narrowly lanceolate. Corolla purple-blue, 3.8–4 cm, pubescent, middle lobe of lower lip smaller. Fl. Jul-Sep.

• Alpine meadows, grassy slopes, sunny areas in sparse forests; 700–3100 m. Hebei, Liaoning, Nei Mongol, Qinghai, Shanxi.

Used in Hebei and Shanxi as a substitute for tea. Also used as an ornamental herb for its large, purple-blue flowers.

**30. *Dracocephalum palmatoides*** C. Y. Wu & W. T. Wang, Fl. Reipubl. Popularis Sin. 65(2): 593. 1977.

掌叶青兰 zhang ye qing lan

Rhizomes ca. 3 mm in diam. Stems numerous, densely spreading or retrorse white pubescent, fertile 2–3 cm, sterile 1.2–2 cm. Leaves ± palmately 5-pinnatifid to slightly more than 1/2 its length; petiole slightly shorter to longer than blade, silky villous; leaf blade broadly triangular-ovate, 3–5×3.5–6 mm, adaxially silky-pubescent, abaxially densely white sericeous-tomentulose, base cordate to subtruncate; lobes narrowly elliptic, apex rounded to obtuse, margin involute. Verticillasters in terminal capitula 0.9–1.4 cm; bracts purple-red, elliptic to elliptic-obovate, 6–10×2.5–4 mm, margin pubescent, ciliate, entire or with 1 or 2 lanceolate to ovate or triangular serrations, apex acute to spinescent-acuminate with spines 0.5–1 mm. Calyx campanulate-tubular, ca. 8 mm, pubescent, ciliate, 2-lipped to 1/2 its length; upper lip teeth divisions to 2/3 of lip, teeth triangular-ovate, apex acute-acuminate; middle tooth of upper lip to 1.5×as wide as lateral teeth; lower lip teeth divisions to 3/4 of lip, teeth lanceolate to broadly-lanceolate. Corolla ca. 1.1 cm, densely fine pubescent, apically villous near margin, lower lip glabrous. Fl. Jul.

• Slopes. Xinjiang (Toli Xian).

Related in the original description to *Dracocephalum palmatum* Stephan (Siberia) but apparently closer to the following two species.

**31. *Dracocephalum organoides*** Stephan ex Willdenow, Sp. Pl. 3: 151. 1800.

铺地青兰 pu di qing lan

*Dracocephalum pinnatum* Linnaeus var. *songaricum* Lipsky.

Rhizomes ca. 5 mm in diam. Stems purplish, numerous, ascending or suberect, densely retrorse pubescent, fertile 3–7 cm, sterile 2–4 cm. Petiole as long as to longer than blade, pubescent, sometimes intermixed with villous hairs; leaf blade pinnatifid, ovate, 3–5×2.5–4.5 mm, adaxially pubescent, abaxially densely white tomentulose, base abruptly broad cuneate to shallow cordate, margin revolute, apex obtuse; segments in 3 pairs, broadly ovate to oblong, basal segment with an oblique reflexed lobe. Verticillasters in axils of apical

2–5 leaf pairs, crowded; bracts obovate-lanceolate, to 8 mm, apex 3-toothed, rarely entire, pubescent, ciliate. Calyx 7–8 mm, pubescent, ciliate, 2-lipped to 1/2 its length; upper lip teeth divisions to beyond 1/2 of lip, middle tooth obovate, lateral teeth broadly lanceolate; lower lip teeth divisions nearly to lip base, teeth spinescent-acuminate, spines less than 1 mm. Corolla blue, to 1.2 cm. Nutlets black, oblong. Fl. Jun-Jul, fr. Aug.

Grassy slopes, dry hillocks in alluvial regions; 1700–2500 m. Xinjiang [Kazakhstan, Kyrgyzstan, Mongolia, Russia].

**32. *Dracocephalum pausenii*** Briquet, Bot. Tidsskr. 28: 238. 1908.

宽齿青兰 kuan chi qing lan

Herbs procumbent, ± cespitose. Rhizomes ca. 8 mm in diam., woody. Stems numerous, 5–15 cm, densely spreading pubescent. Petiole 2–3 mm; leaf blade pinnatifid, ovate, ca. 3–4×3–4 mm, adaxially green, strigose, abaxially white tomentose, blade segments margin involute, apex obtuse. Verticillasters in terminal, globose-ovoid or oblong spikes 2–3×1.5 cm; bracts purple or purple-blue, elliptic, pinnatifid, apex somewhat obtuse. Calyx tubular-campanulate, 6–7 mm, spreading pilose; upper lip broadly ovate, 3-toothed; lateral teeth of upper lip narrowly ovate, strongly connate with middle tooth; teeth of lower lip ovate-lanceolate, apex short acuminate. Corolla purple-blue, with dark spots, 1–1.2 cm, densely strigose, exerted portion of tube dilated into wide throat; upper lip short, lower lip reflexed, larger. Fl. Jun-Aug.

Alpine meadows; 3500–4200 m. Xinjiang [Afghanistan, Kyrgyzstan, Pakistan, Tajikistan].

Considered by some as a synonym of *Dracocephalum discolor* Bunge.

**33. *Dracocephalum ruyschiana*** Linnaeus, Sp. Pl. 2: 595. 1753.

青兰 qing lan

*Ruyschiana spicata* Miller; *Zornia linearifolia* Moench.

Stems erect, minutely retrorse hairy, sparsely hairy toward base. Leaves sessile or subsessile, linear to lanceolate-linear, 3.4–6.2 cm, sparsely minutely hairy on veins, glabrescent, base narrowly cuneate, apex obtuse. Verticillasters in apical 4–6 nodes, ± crowded; bracts ovate-elliptic, to 1/2 as long as calyx, apex acute, densely ciliate. Calyx 1–1.2 cm, densely pubescent basally, sparsely pubescent at apex, 2-lipped to ca. 2/5 its length; upper lip teeth divisions to 2/3 of lip, middle tooth ovate-elliptic, slightly wider than lateral teeth, lateral teeth triangular to broadly lanceolate; lower lip purplish, with 2 lanceolate, apically acute teeth, margin ciliate. Corolla blue-purple, 1.7–2.4 cm, pubescent outside. Fl. Jul.

Montane grasslands, stony areas in grasslands. Heilongjiang, Nei Mongol, Xinjiang [Kazakhstan, Kyrgyzstan, Mongolia, Russia, Turkmenistan; Europe].

Source of an essential oil.

**34. *Dracocephalum argunense*** Fischer ex Link, Enum. Hort. Berol. Alt. 2: 118. 1822.

光萼青兰 guang e qing lan

*Dracocephalum ruyschiana* Linnaeus var. *argunense* Nakai; *D. ruyschiana* Linnaeus var. *spectosum* Ledebour; *D. speciosa* Ledebour.

Stems numerous, erect, 35–57 cm, sparsely retrorse minute hairy toward apex, subglabrous toward base. Petiole 1/4–1/3 as long as blade, absent in apical leaves; basal leaf blade oblong-lanceolate, 2.2–4×0.5–0.6 cm; upper cauline blade lanceolate-linear, 4.5–6.8×0.3–0.6 cm, abaxially sparsely pubescent on veins or subglabrous, base cuneate, apex obtuse. Verticillasters in upper 2–4 nodes, ± crowded; floral leaves lanceolate to ovate-lanceolate; bracts green, elliptic to spatulate-obovate, 7–12 mm, apex acute, ciliate. Calyx 1.4–1.8 cm, densely retrorse minute hairy basally, subglabrous at apex, 2-lipped to ca. 1/2 its length; upper lip teeth divisions to 2/3 of lip, middle tooth lanceolate-ovate, slightly wider than lateral teeth; lateral teeth of upper lip lanceolate; lower lip teeth lanceolate, apex purplish, acute. Corolla blue-purple, 3.3–4 cm, pubescent. Fl. Jul-Aug.

Grassy slopes, grasslands, sandy and grassy riverbanks, thickets; 200–800 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol [Korea, Russia].

**35. *Dracocephalum stamineum*** Karelin & Kirilow, Bull. Soc. Imp. Naturalistes Moscou 15: 423. 1842.

长蕊青兰 *chang rui qing lan*

*Dracocephalum pulchellum* Briquet; *Fedtschenkiella staminea* (Karelin & Kirilow) Kudrjashev.

Herbs perennial, ± caespitose. Rhizomes oblique, 3–5 mm in diam. Stems purple-red, numerous, ascending, 10–27 cm, unbranched or few branched, retrorse pubescent; internodes below inflorescence 6–9 cm, internodes in inflorescence 0.8–1.5 cm. Petiole 5–6×as long as basal blade, as long as to longer than blade at mid stem; leaf blade broadly ovate, 0.8–1.3×0.7–1.4 cm, sparsely pubescent, abaxially golden glandular, base cordate, margin crenate-dentate, apex obtuse. Verticillasters in uppermost 1–3 stem nodes, crowded in capitula; floral leaves leaflike, serrate with an apical spine to 3.6 mm; bracts elliptic-ovate to obovate, 2–3 mm, densely villous, margin with 4 or 5 teeth terminated in a spine 2.5–4.5 mm. Calyx purple, 6–7 mm, densely lanate, 2-lipped, lip divided to middle of calyx; upper lip teeth divisions to 1/3 its length, teeth subequal, triangular-ovate, apex spinescent-acuminate, sinuses with spinescent appendages; teeth of lower lip lanceolate. Corolla blue-purple, ca. 8 mm, puberulent, lips subequal. Stamens ca. 1.1 cm, much exserted. Nutlets black-brown, oblong, ca. 2×1.2 mm.

Hills, grassy slopes, streamsides; 1700–2500 m. Xinjiang, Xizang [Afghanistan, India, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan].

The small corollas and clearly exserted stamens make this plant distinct.

