

74. ELSHOLTZIA Willdenow, Bot. Mag. (Römer & Usteri) 4(11): 3. 1790.

香薷属 *xiang ru shu*

Herbs, subshrubs, or shrubs. Verticillasters in continuous or interrupted spikes or capitula; spikes cylindric or secund, often compact, sometimes in panicles; bracts ovate or flabellate to minute, narrower than calyx. Calyx campanulate or cylindric, throat glabrous; teeth 5, subequal or anterior 2 longer. Corolla white, yellowish, or purplish, 2-lipped, hairy and glandular outside, hairy annulate or glabrous inside; tube to slightly longer than calyx, straight or slightly curved, funnellform; upper lip straight, margin entire or emarginate; lower lip spreading, 3-lobed, lateral lobes entire; middle lobe largest, margin entire, apex erose or emarginate. Stamens 4, usually exserted, anterior 2 longer, rarely undeveloped, free; filaments glabrous; anther cells 2, divergent or divaricate, apex confluent. Ovary glabrous. Style usually exserted beyond stamens, apex deeply to shallowly 2-cleft; lobes subulate, sublinear or clavate, usually equal. Nutlets ovoid to oblong, glabrous or sparsely hairy, tuberculate or smooth.

About 40 species: Europe, Japan, Korea, North America; 33 species in China.

- 1a. Bracts lanceolate, subulate or linear.
 - 2a. Abaxial surface of leaves white tomentose, sometimes yellowish tomentose when dry, different in color from adaxial surface.
 - 3a. Leaves long petiolate, elliptic to rhombic-ovate, adaxially finely corrugate, obtusely serrate; verticillasters pedunculate, loosely capitate on basal part of spikes; corolla white, sometimes purple or yellowish 1. *E. rugulosa*
 - 3b. Leaves subsessile or short petiolate, lanceolate or oblanceolate, adaxially not finely corrugate, serrulate above base; verticillasters sessile, capitate; corolla white to green-yellow 2. *E. myosurus*
 - 2b. Abaxial surface of leaves glabrous or hairy, of same color as adaxial surface.
 - 4a. Abaxial surface of leaves glabrous or puberulent on veins.
 - 5a. Lower verticillasters widely spaced; flowers pendulous when open; calyx glabrous outside 11. *E. penduliflora*
 - 5b. Verticillasters continuous; flowers not pendulous when open; calyx tomentose outside.
 - 6a. Spikes ± secund; corolla ca. 9 mm, rose-purple; leaves lanceolate to oblong-lanceolate 7. *E. stauntonii*
 - 6b. Spikes cylindric; corolla ca. 4 mm, white; leaves rhombic-lanceolate 4. *E. glabra*
 - 4b. Abaxial surfaces of leaves variously hairy.
 - 7a. Shrubs or subshrubs; corolla white or yellow.
 - 8a. Inflorescences capitate; leaves elliptic-oblong to oblong, 0.8–2 cm×2–5 mm, densely floccose-pubescent, shallowly crenate above base 9. *E. capituligera*
 - 8b. Inflorescences spicate; leaves larger than 2 cm×5 mm, coarsely dentate.
 - 9a. Spikes ± secund, loose; bracts subulate to lanceolate-subulate 14. *E. blanda*
 - 9b. Spikes cylindric, compact; bracts lanceolate.
 - 10a. Leaves lanceolate to elliptic-lanceolate, coarsely serrate, apex acuminate 3. *E. fruticosa*
 - 10b. Leaves ovate to oblong, crenate to crenate-serrate, apex acute.
 - 11a. Bracts conspicuous; calyx densely lanate-pilose outside; leaves subsessile 5. *E. eriocalyx*
 - 11b. Bracts inconspicuous; calyx yellowish white tomentose outside; leaves petiolate 6. *E. ochroleuca*
 - 7b. Herbs; corolla mostly purple-red, rarely white.
 - 12a. Inflorescences capitate, loose; annual diffuse herbs 12. *E. cephalantha*
 - 12b. Inflorescences spicate, compact; erect herbs (except *E. pilosa*).
 - 13a. Inflorescences terminal, axillary; corolla white 8. *E. winitiana*
 - 13b. Inflorescences inserted on stem and branch apices; corolla rose-purple or purple.
 - 14a. Plants pilose-hispid; bracts densely, rigid, spreading white ciliate 13. *E. pilosa*
 - 14b. Plants pubescent; bracts pubescent or pilose.
 - 15a. Spikes 5(–8) mm in diam. in flower; leaves rhombic-ovate, incised-serrate above base, adaxially sparsely pubescent 15. *E. stachyodes*
 - 15b. Spikes 8–10 mm in diam. in flower; leaves ovate to oblong, serrate to crenate, adaxially puberulent or villous.
 - 16a. Plants with strong citral fragrance; calyx apex conspicuously curved forward after anthesis, densely lanate-villous; cultivated species, rarely naturalized 16. *E. communis*
 - 16b. Plants without citral fragrance; calyx apex straight curved forward, densely pubescent; native species 17. *E. cyprianii*
- 1b. Bracts flabellate, subcircular, or ± broadly ovate.
 - 17a. Leaves broadly ovate to subcircular, 8–15 cm 10. *E. flava*
 - 17b. Leaves not broadly ovate or subcircular, 0.5–12 cm.
 - 18a. Bracts united into a cup at each node, densely overlapping.
 - 19a. Spikes cylindric, not secund 20. *E. strobilifera*
 - 19b. Spikes secund.
 - 20a. Corolla white to yellowish; bract with numerous, irregular subulate teeth (entire or 1- or 2-toothed in var. *holostegia*) 23. *E. luteola*
 - 20b. Corolla rose-purple; bracts 1-mucronate.
 - 21a. Stems straight, unbranched or few branched on upper part, with slender, basal stolons; leaves heteromorphic 21. *E. heterophylla*

- 21b. Stems prostrate, ascending, base branched, sometimes with numerous short stolons; leaves not heteromorphic 22. *E. bodinieri*
- 18b. Bracts free.
- 22a. Spikes cylindrical.
- 23a. Spikes interrupted at base at anthesis.
- 24a. Corolla yellow; calyx densely yellow moniliform villous, cylindrical 18. *E. eriostachya*
- 24b. Corolla purplish; calyx densely purple moniliform villous, subglobose 19. *E. densa*
- 23b. Spikes not interrupted at base.
- 25a. Abaxial leaf surface densely puberulent, ± pilose on veins 27. *E. oldhamii*
- 25b. Abaxial leaf surface finely pilose or puberulent.
- 26a. Plants prostrate, producing adventitious roots on basal part of stem; leaves ovate to ovate-lanceolate; bracts pilose outside 25. *E. kachinensis*
- 26b. Plants erect, without adventitious roots on lower part of stem; leaves lanceolate to linear-lanceolate; bracts glabrous outside 28. *E. saxatilis*
- 22b. Spikes secund.
- 27a. Leaves 1–1.5 cm, linear to linear-lanceolate 26. *E. pygmaea*
- 27b. Leaves more than 1.5 cm, oblong or ovate to lanceolate.
- 28a. Leaf blade base rounded to shallowly cordate, auriculate-dentate; corolla rose red, 2–3 mm 24. *E. hunanensis*
- 28b. Leaf blade base attenuate, cuneate, decurrent, rarely rounded; corolla purple to rose-purple, 4.5–8 mm.
- 29a. Bracts usually discolored, glabrous or subglabrous, margin ciliate.
- 30a. Calyx teeth unequal, anterior 2 longer; leaves ovate to elliptic-lanceolate; corolla ca. 4.5 mm 33. *E. ciliata*
- 30b. Calyx teeth subequal; leaves ovate-triangular to oblong-lanceolate; corolla 6–7 mm 29. *E. splendens*
- 29b. Bracts usually purplish at least on veins, long pilose.
- 31a. Calyx teeth ± equal; petiole 8–25 mm; plants 50–100 cm 30. *E. argyi*
- 31b. Calyx teeth unequal, anterior 2 longer; petiole 2–8 mm; plants rarely to 50 cm.
- 32a. Petiole white floccose; leaf blade lanceolate, base attenuate, margin serrate, apex acuminate; corolla ca. 6 mm 31. *E. souliei*
- 32b. Petiole pubescent; leaf blade ovate, base rounded to broadly cuneate, margin crenate, apex obtuse; corolla ca. 8 mm 32. *E. feddei*

1. *Elsholtzia rugulosa* Hemsley, J. Linn. Soc., Bot. 26: 278. 1890.

野拔子 ye ba zi

Aphanochilus rugulosus (Hemsley) Kudô; *Elsholtzia labordei* Vaniot; *E. mairei* H. Léveillé; *Plectranthus labordei* (Vaniot) Diels.

Herbs to subshrubs. Stems 30–150 cm tall, much branched, branches densely white puberulent. Petiole 0.5–2.5 cm; leaf blade elliptic to rhombic-ovate, 2–7.5×1–3.5 cm, papery, adaxially hispid, rugulose, abaxially gray tomentose, base rounded to broadly cuneate, margin obtusely serrate with entire base, apex acute to slightly obtuse; lateral veins 4–6 paired, prominent abaxially. Spikes terminal 3–12 cm or more, mostly white tomentose; verticillasters pedunculate, dense at spike apex, lax at base; peduncle 1.2–2.5 cm; upper bracts lanceolate to subulate, 1–3 mm, margin entire. Pedicel less than 1 mm. Calyx campanulate, ca. 1.5×1 mm, white hispid; teeth equal or posterior 2 longer, ca. 0.7 mm. Corolla white, sometimes purple or yellowish, ca. 4 mm, villous outside, obliquely hairy annulate inside, tube ca. 3 mm, ca. 1.5 mm wide at throat; upper lip less than 1 mm, apex emarginate; middle lobe of lower lip circular, ca. 1×1 mm, margin erose; lateral lobes semicircular. Anterior stamens exerted; filaments slightly hairy. Nutlets yellowish, oblong, slightly flattened, ca. 1 mm, smooth. Fl. and fr. Oct-Dec.

• Hilly grasslands, waste areas, forests, thickets; 1300–2800 m. Guangxi, Guizhou, Sichuan, Yunnan.

Used medicinally.

2. *Elsholtzia myosurus* Dunn, Notes Roy. Bot. Gard. Edinburgh 8: 160. 1913.

鼠尾香薷 shu wei xiang ru

Aphanochilus fruticosa (D. Don) Kudô var. *tomentella* (Rehder) Kudô; *A. myosurus* (Dunn) Kudô; *Elsholtzia fruticosa* (D. Don) Rehder var. *tomentella* Rehder.

Shrubs aromatic, 0.8–1.5 m tall. Branches densely stellate-puberulent. Petiole short or obsolete; leaf blade lanceolate to oblanceolate, 4.5–10×1–2.5 cm, adaxially puberulent, glandular hairy, lanate, abaxially gray, stellate-tomentose, base cuneate, margin serrulate except for entire base, apex acute to acuminate; lateral veins 6- or 7-paired, conspicuously elevated abaxially. Spikes 4–13 cm, pedunculate, base interrupted; verticillasters many flowered; bracts subulate to linear, to 1 mm. Pedicel ca. 0.5 mm. Calyx campanulate, ca. 2 mm, ca. 1 mm wide at mouth, densely stellate-tomentose; teeth triangular-subulate, subequal, posterior 2 usually longer, ca. 0.5 mm; fruiting calyx tubular, to 3.5×1.5 mm. Corolla white to greenish yellow, ca. 5 mm; tube ca. 0.7 mm wide at base, widening to 1.5 mm wide at throat; upper lip ca. 0.6 mm, apex emarginate; middle lobe of lower lip circular, margin irregularly incised, ca. 1.5×1.5 mm; lateral lobes semicircular. Anterior stamens exerted; filaments filiform, glabrous. Stigma lobes unequal. Nutlets yellow, oblong, ca. 1.5 mm, smooth. Fl. Sep-Oct, fr. Nov.

• Hills, waste areas, valleys; 2600–3000 m. Sichuan, Yunnan.

3. *Elsholtzia fruticosa* (D. Don) Rehder, Pl. Wilson. 3: 381. 1917.

鸡骨柴 *ji gu chai*

Shrubs erect, 0.8–2 m tall, much branched. Stems and branches yellow- or purple-brown, white floccose-pilose, glabrescent, bark exfoliating. Petiole short to obsolete; leaf blade elliptic-lanceolate to oblong, 6–13×2–3.5 cm, densely yellow glandular, adaxially strigose, abaxially curved pubescent or glabrous except for sparsely puberulent veins, base narrowly cuneate, margin coarsely serrate except for entire base, apex acuminate; lateral veins 6–8 paired, prominent abaxially. Spikes cylindric, 6–20×to 1.3 cm in flower, base ± interrupted, mostly densely pubescent; verticillasters short pedunculate, many flowered; bracts mostly lanceolate to subulate, shorter than verticillasters. Pedicel 0.5–2 mm. Calyx campanulate, ca. 1.5 mm, gray pubescent; teeth triangular-subulate, ca. 0.5 mm, subequal; fruiting calyx tubular, ca. 3×1 mm, conspicuously veined. Corolla white to yellowish, ca. 5 mm, floccose outside, golden glandular, hairy annulate inside; tube ca. 4 mm, ca. 1 mm wide at base, to 2 mm wide at throat; upper lip erect, ca. 0.5 mm, apex emarginate; middle lobe of lower lip circular, ca. 1 mm; lateral lobes semicircular. Nutlets brown, oblong, ca. 1.5×0.5 mm, adaxially ribbed, apex obtuse. Fl. Jul-Sep, fr. Oct-Nov.

Grasslands, hills, mountains, valleys; 1200–3800 m. Gansu, Guangxi, Guizhou, Hubei, Sichuan, Xizang, Yunnan [Bhutan, India (Sikkim), Nepal].

- 1a. Leaves lanceolate to elliptic-lanceolate, abaxially curved pubescent 3a. var. *fruticosa*
1b. Leaves oblong, abaxially glabrous except for sparsely puberulent veins 3b. var. *glabrifolia*

3a. *Elsholtzia fruticosa* var. *fruticosa*

鸡骨柴 *ji gu chai*

Perilla fruticosa D. Don, Prodr. Fl. Nepal. 115. 1825; *Aphanochilus fruticosus* (D. Don) Kudô; *A. polystachys* Benth; *Buddleia plectranthoidea* H. Léveillé; *Colebrookea oppositifolia* Loddiges; *Elsholtzia dielsii* H. Léveillé; *E. fruticosa* (D. Don) Rehder f. *inclusa* Sun ex C. H. Hu; *E. fruticosa* f. *leptostachya* C. Y. Wu & S. C. Huang; *E. fruticosa* var. *parvifolia* C. Y. Wu & S. C. Huang; *E. polystachya* Benth; *E. souliei* H. Léveillé; *E. tristis* H. Léveillé; *Leucosceptum plectranthoideum* (H. Léveillé) Marquand.

Leaf blade lanceolate to elliptic-lanceolate, abaxially curved pubescent.

Grasslands, open hills, valleys; 1200–3200 m. Gansu, Guangxi, Guizhou, Hubei, Sichuan, Xizang, Yunnan [Bhutan, India (Sikkim), Nepal].

Used medicinally.

3b. *Elsholtzia fruticosa* var. *glabrifolia* C. Y. Wu & S. C. Huang, Acta Phytotax. Sin. 12: 338. 1974.

光叶变种 *guang ye bian zhong*

Leaf blade oblong, abaxially glabrous except for sparsely puberulent veins.

• Forests on limestone mountains; 3100–3800 m. Sichuan, Yunnan.

4. *Elsholtzia glabra* C. Y. Wu & S. C. Huang, Acta Phytotax. Sin. 12: 338. 1974.

光香薷 *guang xiang ru*

Shrubs 1.5–2.5 m tall. Branchlets glabrous. Petiole short or obsolete; leaf blade rhombic-lanceolate, 6–15×2–4.6 cm, base cuneate-decurrent, margin crenate-serrate, entire at base, apex acuminate; veins densely puberulent, lateral veins 7- or 8-paired. Spikes 5–13 cm, gray tomentose, glandular; verticillasters short pedunculate, many flowered; bracts subulate, minute, early deciduous. Pedicel ca. 0.5 mm. Calyx campanulate, ca. 1.2 mm, densely gray tomentose, glandular outside, glabrous except for tomentose teeth inside; teeth triangular-subulate, ca. 0.5 mm, subequal. Corolla white, ca. 4 mm, pubescent, glandular outside, bearded annulate inside; tube funnelform, base ca. 1 mm, throat to 1.8 mm wide; upper lip ca. 0.5 mm, apex emarginate; middle lobe of lower lip subcircular, ca. 1 mm, margin erose; lateral lobes subtriangular, obtuse. Nutlets brownish, oblong, ca. 1 mm. Fl. Oct.

• Thicket margins, sparse forests; 1900–2400 m. Sichuan, Yunnan.

5. *Elsholtzia eriocalyx* C. Y. Wu & S. C. Huang, Acta Phytotax. Sin. 12: 338. 1974.

毛萼香薷 *mao e xiang ru*

Subshrubs 1.5–2 m tall. Branches subcylindric, brown-purple when dry, floccose-pilose. Petiole 1–3 mm; leaf blade elliptic to oblong, 4–12×1.5–4.5 cm, adaxially puberulent or subglabrous, abaxially puberulent or tomentose, glandular, base broadly cuneate to rounded, margin crenate-serrate, apex acute; lateral veins 4- or 5-paired, prominent abaxially. Spikes 5–8×ca. 1.5 cm, densely lanate-pilose; verticillasters 8–10-flowered; bracts oblong to ovate-lanceolate, 4–7×1–1.5 mm. Pedicel ca. 1 mm. Calyx campanulate, ca. 2 mm, densely lanate-pilose, yellowish glandular outside, glabrous except for slightly puberulent teeth inside, margin ciliolate; teeth lanceolate, equal. Corolla yellow-white, ca. 7 mm, pubescent, glandular outside, hairy annulate inside; tube funnelfrom, throat to 2 mm wide; upper lip emarginate; middle lobe of lower lip circular, margin entire; lateral lobes smaller, semicircular. Nutlets unknown. Fl. Sep-Oct.

• Grasslands, thicket margins, forests, hills; 2700–3400 m. Sichuan, Yunnan.

- 1a. Leaves puberulent abaxially 5a. var. *eriocalyx*
1b. Leaves densely white lanate-tomentose abaxially 5b. var. *tomentosa*

5a. *Elsholtzia eriocalyx* var. *eriocalyx*

毛萼香薷 *mao e xiang ru*

Elsholtzia fruticosa (D. Don) Rehder var. *paucidentata* Handel-Mazzetti.

Leaf blade puberulent abaxially.

• Wet grasslands, hills; 2700–3400 m. Yunnan.

5b. *Elsholtzia eriocalyx* var. *tomentosa* C. Y. Wu & S. C. Huang, Acta Phytotax. Sin. 12: 339. 1974.

绒毛变种 *rong mao bian zhong*

Leaf blade abaxially densely white lanate-tomentose.

- Thicket margins, pine-oak forests; 3100 m. Sichuan.

6. *Elsholtzia ochroleuca* Dunn, Notes Roy. Bot. Gard. Edinburgh 8: 161. 1913.

黄白香薷 huang bai xiang ru

Aphanochilus fruticosus (D. Don) Kudô var. *ochroleuca* (Dunn) Kudô; *Elsholtzia lampradena* H. Léveillé; *E. ochroleuca* Dunn var. *parvifolia* C. Y. Wu & S. C. Huang.

Shrubs erect 1–1.5 m tall. Branches cylindrical, brownish, bark exfoliating; young branches dark brown, densely antrorse gray villous. Petiole 0.5–1.5 cm; leaf blade ovate to ovate-elliptic, (1.5–)5–8×(0.6–)2.5–4.3 cm, densely yellowish glandular, gray strigose, densely so on veins abaxially, base cuneate-decurrent, margin crenate except entire at base, apex acute, lateral veins 4–6-paired. Spikes terminal only, 5–10 cm, ca. 1 cm in diam. in flower; verticillasters short pedunculate, ± widely spaced at base; peduncle and rachis densely gray-yellow tomentose; bracts subulate-lanceolate. Pedicel 0.5–1.5 mm, densely gray-yellow tomentose. Calyx campanulate, ca. 1.2×1 mm, yellow-white tomentose outside and on teeth inside; teeth triangular-subulate, ca. 0.4 mm, subequal. Corolla yellowish white, ca. 3.2 mm, sparsely pilose, yellowish glandular outside, bearded annulate inside, tube ca. 2.2 mm, funnellform, throat to 1 mm wide; upper lip ca. 1 mm, apex emarginate; middle lobe of lower lip subcircular, ca. 1 mm, margin incised; lateral lobes semicircular. Immature nutlets oblong, ca. 1 mm, apex rounded, adaxially ribbed. Fl. Aug.

- Sunny hills, ravines, thickets; 1600–2600 m. Sichuan, Yunnan.

7. *Elsholtzia stauntonii* Benth. Labiat. Gen. Spec. 161. 1833.

木香薷 mu xiang ru

Aphanochilus stauntonii (Benth.) Kudô.

Subshrubs erect, 0.7–1.7 m tall. Stems much branched apically, purple-red, gray puberulent. Petiole 4–6 mm, purplish, puberulent; leaf blade lanceolate to elliptic-lanceolate, 8–12×2.5–4 cm, adaxially glabrous, puberulent along margin and midrib, abaxially whitish, densely glandular, base attenuate, margin serrate-crenate, apex acuminate. Spikes secund, gray puberulent, 3–12 cm; verticillasters 5–10-flowered; bracts lanceolate to linear-lanceolate, 2–3 mm, purplish. Pedicel 0.5 mm. Calyx tubular-campanulate, ca. 2×1 mm, densely gray tomentose outside, glabrous except for gray tomentose teeth inside; teeth ovate-lanceolate, ca. 0.5 mm, subequal; fruiting calyx to 4×1.5 mm. Corolla rose-purple, ca. 9 mm, white villous outside, sparsely glandular, interrupted bearded annulate inside; tube ca. 6 mm, funnellform, to 2.5 mm wide at throat; upper lip ca. 2 mm, apex emarginate; middle lobe of lower lip subcircular, ca. 3 mm; lateral lobes subovate, rounded, slightly shorter than middle lobe. Anterior stamens much exerted. Nutlets ellipsoid, smooth. Fl. and fr. Jul–Oct.

- Valley streamsides, grassy hills, rocky mountains, riverbanks; 700–1600 m. Gansu, Hebei, Henan, Shaanxi, Shanxi.

8. *Elsholtzia winitiana* Craib, Bull. Misc. Inform. 1918: 368. 1918.

白香薷 bai xiang ru

Herbs erect, 1–1.7 m tall. Branches densely white floccose-villous. Petiole 0.7–1.5 cm, densely gray villous; leaf blade oblong-lanceolate, 4–10×1.5–3.5 cm, thin papery, adaxially gray-green, densely gray villous, abaxially gray, densely gray villous, glandular, base cuneate, margin crenate, apex acuminate. Spikes 3–9 cm, 5–6 mm in diam. after anthesis; rachis densely gray villous; lower bracts oblong oblanceolate, 2.5–3 mm, abaxially white pubescent, glandular, glabrous inside, ciliate, apex acuminate; upper bracts subulate-lanceolate, longer than verticillasters. Pedicel densely gray villous. Calyx campanulate, ca. 1 mm, densely white villous especially toward base outside; teeth sparsely puberulent inside, narrowly triangular, subequal; fruiting calyx slightly enlarged, ca. 2×1.2 mm. Corolla white, villous, glandular outside, bearded annulate inside; tube ca. 2 mm, throat to 1 mm wide; upper lip ca. 0.3 mm, margin entire; middle lobe of lower lip subcircular; lateral lobes semicircular. Nutlets brownish yellow, oblong, apex rounded, base attenuate. Fl. Nov–Dec, fr. Jan–Mar.

- Open forests, grassy hills, thickets; 600–2200 m. Guangxi, Yunnan.

9. *Elsholtzia capituligera* C. Y. Wu, Acta Phytotax. Sin. 8:49. 1959.

头花香薷 tou hua xiang ru

Acrocephalus fruticosus Dunn.

Shrubs 15–30 cm tall. Stems robust, twisted, brown, glabrous, much branched, bark exfoliating longitudinally; branches slender, white floccose-pubescent. Petiole to 4 mm; leaf blade elliptic-oblong to oblong, 0.8–2 cm×2–5 mm, herbaceous, densely floccose-pubescent, sparsely golden glandular, base cuneate, margin crenate, apex obtuse. Spikes capitate, terminal, 5–10×4–8 mm, long pedunculate, white pubescent; verticillasters compact; bracts subulate, ca. 2 mm. Pedicel less than 1 mm. Calyx campanulate, ca. 2 mm, white pubescent outside; teeth lanceolate, subequal, sparsely puberulent inside; fruiting calyx tubular, slightly constricted at throat, ca. 3.5×1 mm, scarious. Corolla green or white to purplish, ca. 4.5 mm, pilose outside, hairy annulate inside; upper lip circular, ciliate; lower lip dilated, middle lobe circular, slightly concave; lateral lobes oblong. Nutlets chestnut brown, obovoid, apex rounded, base acute, ca. 1.2 mm. Fl. and fr. Sep–Nov.

- Dry, sunny, weathered gravelly areas; 2000–3000 m. Sichuan, Xizang, Yunnan.

10. *Elsholtzia flava* (Benth.) Benth., Labiat. Gen. Spec. 161. 1833.

黄花香薷 huang hua xiang ru

Aphanochilus flavus Benth., Pl. Asiat. Rar. 1: 28. 1830.

Subshrubs erect, 0.6–2.6 m tall. Branches densely gray pubescent. Petiole 3–6 cm; leaf blade broadly ovate to sub-circular, 8–15×5.2–8.2 cm, adaxially pubescent especially on veins, abaxially glabrous, densely yellowish glandular, puberulent on veins, base rounded to shallowly cordate, oblique, margin mucronate- to serrate-crenate, apex abruptly caudate-acuminate. Spikes terminal and axillary, robust, 6–12 cm, pedunculate, densely gray pubescent; lower verticillasters widely spaced; bracts broadly ovate, ca. 3×3 mm, sparsely puberulent abaxially, margin ciliate, apex mucronate. Pedicel ca. 1 mm. Calyx campanulate, ca. 3.5 mm, pubescent, glandular outside, apex pubescent inside; teeth subulate-linear,

apex linear; fruiting calyx tubular-campanulate, to 6.5×2.5 mm. Corolla yellow, ca. 6.5 mm, white villous, glandular outside, bearded annulate inside; tube ca. 4 mm, funnellform, to 2 mm wide at throat; upper lip emarginate; middle lobe of lower lip subcircular, margin erose; lateral lobes suboblong, rounded. Nutlets dark brown, oblong, ca. 1 mm. Fl. Jul-Oct, fr. Sep-Nov.

Open cultivated areas, valleys, forest margins, thickets; 1000–2900 m. Guizhou, Hubei, Sichuan, Yunnan, Zhejiang [India (Sikkim), Nepal].

11. *Elsholtzia penduliflora* W. Smith, Notes Roy. Bot. Gard. Edinburgh 10: 176. 1918.

大黄药 da huang yao

Aphanochilus penduliflorus (W. Smith) Kudô.

Subshrubs aromatic, 1–2 m tall. Branchlets brown when dry, sparsely floccose-puberulent shiny glandular. Leaves oblong- or ovate-lanceolate, 6–18×1.6–4.3 cm, mem-branous, adaxially glabrous, finely dusty pilose on veins, abaxially glabrous, yellowish glandular, base attenuate, cuneate, or rounded and slightly oblique or cordate, margin serrulate, apex acuminate; main veins raised, reddish abaxially. Spikes terminal and axillary, 5–15 cm, pendulous; verticillasters sessile, 6–12-flowered, lower ones widely spaced; rachis ± white pilose; bracts linear to linear-oblong, ca. 2×as long as pedicels. Pedicel 2–4 mm, ± pendulous, ± white pilose. Calyx campanulate, ca. 3 mm, densely glandular outside; teeth triangular-subulate, subequal or anterior 2 slightly shorter; fruiting calyx tubular-campanulate, to 5×2 mm. Corolla white, ca. 5.5 mm, subglabrous; tube ca. 3 mm, funnellform, to 2 mm wide at throat; upper lip ca. 1.5 mm, apex emarginate; middle lobe of lower lip subcircular, lateral lobes semicircular. Nutlets brown, oblong, ca. 1.25 mm, adaxially ribbed, glabrous. Fl. Sep-Nov, fr. Oct-Jan.

• Valleys, hills, waste areas, dense forests; 1100–2400 m. Yunnan.

Used medicinally.

12. *Elsholtzia cephalantha* Handel-Mazzetti, Acta Horti Gothob. 9: 90. 1934.

小头花香薷 xiao tou hua xiang ru

Herbs annual, diffuse, 5–17 cm tall. Stems ascending, unbranched or few branched, ± with 2 rows of white floccose-pilose hairs or subglabrous. Stem leaves widely spaced, subtending short axillary shoots; petiole 3–13 mm, slightly thickened, white floccose-pilose; leaf blade broadly ovate-triangular, 0.5–4×0.5–4 cm, herbaceous, adaxially sparsely fine pilose, abaxially obscurely glandular, sometimes purplish, base truncate to shallowly cordate, rarely rounded, margin crenate, apex acute. Spikes capitate, terminal or axillary, lax flowered, 4–7 mm in diam., sessile or with peduncles longer than petioles; bracts linear to spatulate, shorter than calyx, villous, base cuneate. Pedicel 1–2 mm or less. Calyx cup-shaped, 3–4 mm, villous outside, glabrous inside; teeth 1.5–2 mm, subequal, linear-lanceolate, obtuse; fruiting calyx dilated, glabrescent. Corolla tube subglobose above base, as long as calyx tube; limb broadly campanulate, slightly shorter than calyx teeth, purple moniliform villous outside, 5-lobed; lobes regular, broadly ovate to subtriangular, apex rounded. Stamens subequal, included or slightly exerted. Nutlets globose, ca. 2 mm in diam., appressed puberulent. Fl. Nov.

• Streambanks, alpine meadows; 3200–4100 m. Sichuan.

13. *Elsholtzia pilosa* (Benth) Benth, Labiat. Gen. Spec. 163. 1833.

长毛香薷 chang mao xiang ru

Aphanochilus pilosus Benth, Pl. Asiat. Rar. 1: 30. 1830; *Dysophylla mairei* H. Léveillé.

Herbs procumbent, 10–50 cm tall. Stems pilose-hispid. Petiole 1–10 mm; leaf blade ovate to ovate-lanceolate, 1–4.5×0.3–2.5 cm, herbaceous, adaxially pilose-hispid and minutely hispid, abaxially sparsely yellowish glandular, pilose-hispid on veins, base cuneate to rounded, decurrent, margin crenate except for entire base, apex obtuse. Spikes terminal, 2.5–6×ca. 1 cm; verticillasters overlapping, many flowered; rachis densely pilose; bracts linear-subulate, 5–6 mm, ciliate, longer than corolla. Pedicel less than 1 mm, densely pilose. Calyx campanulate, ca. 2 mm, densely pilose except for base outside; teeth lanceolate, subequal, ca. 1 mm, pilose inside. Corolla reddish, ca. 4 mm, pubescent outside, throat villous, obscurely hairy annulate inside; tube ca. 3 mm, funnellform, to 2 mm wide at throat; upper lip slightly curved, 2-lobed; middle lobe of lower lip circular, margin incised; lateral lobes semicircular. Anterior stamens reduced, posterior 2 included or slightly exerted. Anterior style lobe ca. 2×as long as posterior. Nutlets yellowish, oblong. Fl. and fr. Aug - Oct.

Forest margins, hilly grasslands, riverbanks, marshy meadow margins, pine forests; 1100–3200 m. Guizhou, Sichuan, Yunnan [India (Sikkim), Myanmar, Nepal, Vietnam].

14. *Elsholtzia blanda* (Benth) Benth, Labiat. Gen. Spec. 162. 1833.

四方蒿 si fang hao

Aphanochilus blandus Benth, Pl. Asiat. Rar. 1: 29. 1830; *Perilla elata* D. Don.

Herbs erect, 1–1.5 m tall. Stems and branches densely pubescent. Petiole 3–15 mm, densely pubescent; leaf blade elliptic to elliptic-lanceolate, 3–16×0.8–4.5 cm, adaxially puberulent, glandular, abaxially gray-green, glabrous, strigose on veins, base narrowly cuneate, margin serrate, apex acuminate. Spikes terminal or axillary, subsecund, 4–8(–20) cm, mostly pubescent; verticillasters 7–10-flowered, short pedunculate; bracts subulate to lanceolate-subulate, 1.5–3 mm. Pedicel less than 1 mm. Calyx cylindrical, 2–2.5 mm, strigose outside, teeth lanceolate; fruiting calyx slightly dilated at base, ovoid. Corolla white, 3–4 mm, strigose outside, subglabrous inside, funnellform, throat to 2 mm wide; upper lip emarginate; middle lobe of lower lip subcircular, slightly concave; lateral lobes semicircular, margin entire. Anterior stamens exerted, posterior 2 slightly longer. Nutlets yellow-brown, oblong, ca. 0.8 mm, Fl. Jun-Oct, fr. Oct-Dec.

Open forests, ravines; 800–2500 m. Guangxi, Guizhou, Yunnan [Bhutan, India (Sikkim), Indonesia, Laos, Myanmar, Nepal, Thailand, Vietnam].

Used medicinally.

15. *Elsholtzia stachyodes* (Link) C. Y. Wu, Acta Phytotax. Sin. 12: 340. 1974.

穗状香薷 sui zhuang xiang ru

Hyptis stachyodes Link, Enum. Hort. Berol. Alt. 2: 106. 1822; *Aphanochilus foetens* Benth; *A. incisus* Benth; *A. paniculatus* Benth; *Mentha blanda* de Candolle; *M. foetens* Wallich ex Benth; *M. incisa* Wallich ex Benth; *M. paniculata* Roxburgh; *Perilla leptostachya* D. Don.

Herbs 30–100 cm tall. Stems erect, yellow-brown or purplish, sparsely white floccose-pubescent, ± glabrescent, much branched. Petiole 0.5–4 cm, nearly as long as blades, white, adaxially puberulent; leaf blade rhombic-ovate, 2.5–6×1.5–3.5 cm, thin papery, adaxially sparsely pubescent, abaxially with sparse yellowish glands, pubescent on veins, base cuneate to broadly cuneate, decurrent, margin incised-serrate above base, apex abruptly acuminate. Spikes terminal and axillary, terminal ones 4–8.5 cm, ± interrupted; verticillasters few flowered; bracts subulate-linear, longer than corolla. Pedicel ca. 0.5 mm. Calyx campanulate, ca. 1.5 mm, densely white villous outside; teeth lanceolate, subequal, pubescent inside; fruiting calyx slightly dilated, tubular-campanulate, ca. 2 mm. Corolla white, sometimes purple-red, ca. 2×as long as calyx, pubescent outside, glabrous inside, tube funnellform, upper lip emarginate, middle lobe of lower lip elliptic, lateral lobes rounded. Anterior stamens undeveloped, posterior 2 included or slightly exerted. Nutlets yellowish, ellipsoid. Fl. and fr. Sep-Dec.

Hills, waste areas, open forests, limestone mountains; 800–2800 m. Anhui, Guangdong, Guangxi, Guizhou, Hubei, Shaanxi, Sichuan, Yunnan, Zhejiang [India, Myanmar, Nepal].

16. *Elsholtzia communis* (Collett & Hemsley) Diels, Notes Roy. Bot. Gard. Edinburgh 7: 47. 1912.

吉龙草 *ji long cao*

Dysophylla communis Collett & Hemsley, J. Linn. Soc., Bot. 28: 114. 1891.

Herbs ca. 60 cm tall, with strong citral fragrance. Stems erect, purple-red, densely retrorse white pubescent, much branched at base. Petiole 2–5 mm, densely white pubescent; leaf blade ovate to oblong, herbaceous, adaxially white villous, abaxially pubescent, yellowish glandular, margin serrate. Spikes terminal, cylindrical, 1–4.5×0.8–1 cm, compact; verticillasters numerous; rachis densely white villous; bracts linear, to 3.5 mm, densely white pilose. Pedicel ca. 1 mm, densely white villous. Calyx tubular, to 4 mm in fruit, apex recurved, densely gray lanate-villous outside; teeth subequal, slightly closed in fruit. Corolla funnellform, ca. 3 mm, pilose, glandular outside, obscurely hairy annulate inside; upper lip oblong, emarginate, ciliate; lateral lobes of lower lip less than 1/2 as wide as middle lobe. Style apex unequally 2-cleft. Nutlets oblong, ca. 0.7 mm, sparsely brown hairy. Fl. and fr. Oct-Dec.

Cultivated or rarely naturalized in China (Yunnan) [Myanmar, Thailand].

17. *Elsholtzia cypriani* (Pavolini) S. Chow ex P. S. Hsu, Observ. Ad Florulam Hwangshanica 170. 1965.

野香草 *ye xiang cao*

Herbs. Stems 10–100 cm tall; branches and stem sometimes purple-red, densely retrorse pubescent or villous.

Herbs annual. Stems 15–37 cm tall, purple-red, puberulent, unbranched or branched from base. Petiole 1.5–9 cm, densely fine villous; leaf blade oblong to ovate-oblong, 0.8–4×0.4–1.5 cm, herbaceous, apex subobtusely finely villous,

Petiole 0.2–2 cm, narrowly triangular winged apically, densely pubescent; leaf blade ovate to oblong, 2–6.5×1–3 cm, herbaceous, adaxially dark green, puberulent, abaxially densely pubescent, glandular, base broadly cuneate, decurrent, margin crenate-serrate to coarsely serrate, apex acute. Spikes cylindrical, 2.5–10.5×to 0.9 cm in flower, terminal, pubescent; verticillasters compact; bracts linear, to 3 mm. Pedicel ca. 0.5 mm. Calyx tubular-campanulate, ca. 2 mm, densely pubescent outside, glabrous inside; teeth ca. 1/4 as long as calyx, puberulent inside; fruiting calyx to 5 mm, densely lanate, teeth recurved forward, secund. Corolla rose, ca. 2 mm, villous outside, glabrous inside; tube funnellform, to 1.5 mm wide at throat; upper lip entire or emarginate; middle lobe of lower lip circular; lateral lobes semicircular, entire. Nutlets dark brown, oblong-ellipsoid, sparsely hairy. Fl. and fr. Aug-Nov.

• Field margins, riverbanks, grasslands, valleys, slopes, forests; 400–2900 m. Anhui, Guangxi, Guizhou, Henan, Hubei, Hunan, Shaanxi, Sichuan, Yunnan.

- 1a. Upper part of stems, branches, and petioles densely pubescent 17a. var. *cypriani*
- 1b. Upper part of stems, branches, and petioles densely white villous 17b. var. *longipilosa*

17a. *Elsholtzia cypriani* var. *cypriani*

野香草 *ye xiang cao*

Lophanthus cypriani Pavolini, Nuovo Giorn. Bot. Ital., n.s., 15: 434. 1908; *Aphanochilus communis* Kudô; *Elsholtzia alopecuroides* H. Léveillé & Vaniot; *E. cypriani* (Pavolini) S. Chow ex P. S. Hsu var. *angustifolia* C. Y. Wu & S. C. Huang.; *Pogostemon cypriani* (Pavolini) Pampanini.

Upper part of stems, branches, and petioles densely pubescent.

• Field margins, riverbanks, grasslands, forests; 400–2900 m. Anhui, Guangxi, Guizhou, Henan, Hubei, Hunan, Shaanxi, Sichuan, Yunnan.

An aromatic herb used medicinally.

17b. *Elsholtzia cypriani* var. *longipilosa* (Handel-Mazzetti) C. Y. Wu & S. C. Huang, Acta Phytotax. Sin. 12: 343. 1974.

长毛变种 *chang mao bian zhong*

Elsholtzia communis (Collett & Hemsley) Diels var. *longipilosa* Handel-Mazzetti, Acta Horti Gothob. 13: 357. 1939.

Upper part of stems, branches, and petioles densely white villous.

• Valleys, open slopes; 1600–2800 m. Sichuan, Yunnan.

18. *Elsholtzia eriostachya* (Benth) Benth, Labiat. Gen. Spec. 163. 1833.

毛穗香薷 *mao sui xiang ru*

Aphanochilus eriostachyus Benth, Pl. Asiat. Rar. 1: 29. 1830; *Elsholtzia eriostachya* var. *pusilla* (Benth) J. D. Hooker; *E. pusilla* Benth; *Platyelasma eriostachyum* (Benth) Kitagawa; *P. eriostachyum* var. *pusillum* (Benth) Kitagawa.

yellowish green, base broadly cuneate to rounded, margin serrulate to serrate-crenate. Spikes cylindrical, (1–)1.5–5×to 1 cm, terminal; verticillasters many flowered, basal 1–3 widely spaced; rachis densely pubescent; bracts broadly ovate, 1.5

mm, pilose abaxially, margin ciliate, apex mucronate. Pedicel to 1.5 mm, densely pubescent. Calyx campanulate, ca. 1.2 mm, densely yellowish moniliform villous; teeth triangular, subequal, ciliate; fruiting calyx tubular, ca. 4×1.5 mm. Corolla yellow, ca. 2 mm, puberulent outside, margin ciliate, tube funnelform, upper lip emarginate; lower lip ± patent, middle lobe larger. Nutlets brown, ellipsoid, ca. 1.4 mm. Fl. and fr. Jul-Sep.

• Hilly grasslands; 3500–4100 m. Gansu, Sichuan, Xizang, Yunnan.

19. *Elsholtzia densa* Benth. Labiat. Gen. Spec. 714. 1835.

密花香薷 mi hua xiang ru

Dysophylla ianthina Maximowicz ex Kanitz; *Elsholtzia calycocarpa* Diels; *E. densa* var. *calycocarpa* (Diels) C. Y. Wu & S. C. Huang; *E. densa* var. *ianthina* (Maximowicz ex Kanitz) C. Y. Wu & S. C. Huang; *E. ianthina* (Maximowicz ex Kanitz) Dunn; *E. manshurica* (Kitagawa) Kitagawa; *Platyelasma calycocarpum* (Diels) Kitagawa; *P. densum* (Benth.) Kitagawa; *P. manshuricum* Kitagawa.

Herbs erect. Stems 20–60 cm tall, much branched from base, pubescent. Petiole 3–13 mm, pubescent; leaf blade lanceolate to oblong-lanceolate, 1–4×0.5–1.5 cm, herbaceous, pubescent, base broadly cuneate to rounded, margin serrate except for entire base, apex acute to slightly obtuse. Spikes cylindrical to subglobose, 2–6×1 cm, densely purple moniliform villous; verticillasters dense; bracts ovate-orbicular, ca. 1.5 mm, apex rounded, villous. Calyx campanulate, ca. 1 mm, purple moniliform villous; teeth subtriangular, posterior slightly longer; fruiting calyx subglobose, ca. 4×3 mm, margin and teeth reflexed. Corolla purplish, ca. 2.5 mm, densely purple moniliform villous outside, obscurely pilose annulate inside, tube funnelform, upper lip emarginate, middle lobe of lower lip slightly shorter than lateral lobes. Anterior stamens slightly exerted. Nutlets dark brown, ovoid, ca. 2×1.2 mm, apex tuberculate, finely puberulent, adaxially slightly ribbed. Fl. and fr. Jul-Oct.

Forest margins, alpine meadows, hills, waste areas, riverbanks, forests; 1000–4100 m. Gansu, Hebei, Liaoning, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan [Afghanistan, India (Sikkim), Nepal, Pakistan, Tajikistan].

Used medicinally.

20. *Elsholtzia strobilifera* Benth. Labiat. Gen. Spec. 163. 1833.

球穗香薷 qiu sui xiang ru

Cyclostegia strobilifera Benth.; *Elsholtzia exigua* Handel-Mazzetti; *E. strobilifera* var. *exigua* (Handel-Mazzetti) C. Y. Wu & S. C. Huang.

Herbs annual. Stems (2–)5–15 cm tall; branches and stem brown, crisped white pilose. Petiole 2–12 mm, densely pilose; leaf blade ovate, 0.5–2.5×0.3–2 cm, herbaceous, purple at least abaxially, sparsely fine pilose, brownish glandular, densely pilose on veins, base broadly cuneate, margin serrulate, apex acute. Spikes cylindrical, 1–2.5 cm×6–8 mm, ca. 4 cm in fruit, terminal; verticillasters 6–10-flowered; bracts united into a shallow cup at each node, each mucronate, densely overlapping, membranous, many veined, abaxially sparsely fine pilose, yellow glandular, ± purplish, margin ciliate. Calyx tubular, membranous, transparent, ca. 2 mm, sparsely pubescent, golden glandular outside, glabrous inside;

teeth subequal, lanceolate, margin ciliate. Corolla white or reddish, 3–4 mm, sparsely puberulent outside, glabrous inside; tube slender, funnelform; upper lip emarginate; middle lobe of lower lip longer and wider, margin entire. Stamens included. Nutlets yellowish, ellipsoid. Fl. and fr. Sep-Nov.

Hills, grasslands, open areas in forests, thicket margins, valleys; 2300–3700 m. Sichuan, Taiwan, Xizang, Yunnan [India (Sikkim), Nepal].

21. *Elsholtzia heterophylla* Diels. Notes Roy. Bot. Gard. Edinburgh 5: 231. 1912.

异叶香薷 yi ye xiang ru

Herbs stoloniferous, 30–80 cm tall. Stolons slender. Stems dark purple, sparsely pilose. Stolon leaves short petiolate, broadly elliptic to subcircular, 2–6×2–4 mm, margin remotely obtuse serrate; stem leaves short petiolate or sessile, lanceolate to elliptic, 1.3–2.6 cm×3–7 mm, finely pilose on veins, densely impressed glandular abaxially, base attenuate, margin shallowly serrate to crenate-serrate, apex acuminate. Spikes solitary, terminal, cylindrical, 2.5–4×to 1.8 cm in flower; bracts densely overlapping, broadly flabellate, 6–8 mm wide, scarious, united at base into a cup, apex mucronate to obtuse, conspicuously veined, purplish. Calyx tubular, 3.5–4 mm, pilose and glandular outside, glabrous inside; teeth lanceolate, ca. 1/3 as long as calyx. Corolla rose-purple, 1–1.2 cm, pilose and glandular outside, glabrous inside; tube funnelform, throat to 2.5 mm wide; upper lip emarginate; middle lobe of lower lip erose, lateral lobes entire. Nutlets brown-black, oblong, ca. 1.5 mm, smooth. Fl. and fr. Oct-Dec.

Near villages, field margins, streamsides, marshes; 1200–2400 m. Yunnan [Myanmar].

22. *Elsholtzia bodinieri* Vaniot. Bull. Acad. Int. Géogr. Bot. 14: 176. 1904.

东紫苏 dong zi su

Herbs perennial. Stems ascending, 25–30 cm tall, base ± prostrate, sometimes with numerous, short scaly stolons; branches and stem dark purple, spreading villous. Stolon leaves sessile, obovate to oblong, 3.5–5×2–3 mm, pilose, margin entire or obscurely crenate; stem leaves sessile, lanceolate to oblanceolate, 0.8–2.5 cm×4–7 mm, ± leathery, glabrous, rarely sparsely pilose, tinged purple-red abaxially sparsely impressed glandular, base attenuate, margin crenate, apex obtuse. Spikes solitary, terminal, 2–3.5 cm; bract pairs united into a cup, 6–8 mm wide, villous, glandular abaxially, densely overlapping, margin white ciliate, apex mucronate; teeth lanceolate, subequal, ca. 1 mm. Corolla rose-purple, ca. 9 mm, villous outside, sparsely glandular; tube recurved, funnelform, to 2 mm wide at throat; upper lip emarginate; lower lip slightly spreading, middle lobe longer, margin entire. Nutlets brown-black, oblong, ca. 1.1 mm. Fl. Sep-Nov, fr. Dec-Feb.

• Pine forests, hilly grasslands; 1200–3000 m. Guizhou, Yunnan.

Used medicinally. Young shoots used as substitute for tea.

This species is close to and may be an infraspecific taxon of *Elsholtzia heterophylla*. It is a shorter plant with smaller flowers and has a tendency to be prostrate.

23. *Elsholtzia luteola* Diels. Notes Roy. Bot. Gard. Edinburgh 5: 232. 1912.

淡黄香薷 dan huang xiang ru

Herbs erect, annual, 8–40 cm tall. Stems yellowish, subterete, pilose. Petiole short to obsolete; leaf blade lanceolate, 1–3.5 cm × 3–10 mm, herbaceous, adaxially subglabrous, abaxially pilose, densely impressed glandular, base cuneate, margin remotely serrate, apex acute. Spikes 2–5 cm, to 1 cm in diam., secund; bracts overlapping, united, broadly reniform, margin ciliate. Pedicel short. Calyx tubular, ca. 2.5 mm, pilose, glandular; teeth lanceolate, anterior 2 longer, spinescent outside and at apex. Corolla 5–6.5 mm, pilose outside, glabrous inside; tube ca. 0.5 mm wide at base, to 2 mm wide at throat; upper lip emarginate, ciliate; lower lip slightly spreading, lobes erose, middle lobe subcircular, lateral lobes semicircular. Anterior stamens exerted; anthers ovoid. Style included, apex subequally 2-cleft. Nutlets dark brown, oblong, ca. 1 mm. Fl. Sep–Oct, fr. Oct–Nov.

• Forest margins, hills, streamsides, cultivated on foothills; 2200–3600 m. Sichuan, Yunnan.

- 1a. Bracts with many subulate teeth, middle tooth spinescent; corolla yellowish 23a. var. *luteola*
1b. Bracts entire or 1- or 2-dentate; corolla white 23b. var. *holostegia*

23a. *Elsholtzia luteola* var. *luteola*

淡黄香薷 dan huang xiang ru

Bracts with many irregular subulate teeth, middle tooth spinescent. Corolla yellowish.

• Forest margins, grassy hills, streamsides; 2200–3600 m. Sichuan, Yunnan.

23b. *Elsholtzia luteola* var. *holostegia* Handel-Mazzetti, Acta Horti Gothob. 13: 361. 1939.

全苞变种 quan bao bian zhong

Bracts entire or 1- or 2-toothed. Corolla white.

• Cultivated on foothills; 2900 m. Yunnan.

24. *Elsholtzia hunanensis* Handel-Mazzetti, Symb. Sin. 7: 935. 1936.

湖南香薷 hu nan xiang ru

Perilla frutescens (Linnaeus) Britton var. *auriculato-dentata* C. Y. Wu & Hsuan ex H. W. Li.

Herbs erect, annual. Stems 40–50 cm tall, usually much branched, densely crisped pilose, glandular. Petiole (1/3–)1/2 as long as blade, densely crisped pilose, glandular; leaf blade ovate to broadly ovate, 4–10 × 2–10 cm, herbaceous, sparsely fine strigose, abaxially densely glandular, base rounded to shallowly cordate, lowest teeth auriculate dilated, margin crenate-dentate, apex long acuminate; veins purplish, conspicuous. Spikes terminal or axillary, short pedunculate, 5–12 cm; bracts loosely overlapping, subcircular, ca. 3 mm, bright colored, softly dense ciliate, apex mucronate. Calyx villous outside, tube much longer than teeth; posterior teeth narrowly lanceolate, apex acute; anterior teeth shorter, wider, apex obtuse to mucronate. Corolla rose red, 2–3 mm, slightly exerted, sparsely pilose outside; tube straight, funnelform, pilose annulate inside; upper lip slightly shorter than tube, quadrate-orbicular, apex emarginate; lower lip slightly shorter

than upper, middle lobe emarginate, lateral lobes circular. Anthers globose. Fl. and fr. Aug–Nov.

• Hills, forests; 200–2500 m. Anhui, Guizhou, Hubei, Hunan, Jiangxi.

25. *Elsholtzia kachinensis* Prain, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 73: 206. 1904.

水香薷 shui xiang ru

Elsholtzia kachinensis var. *petiolata* Sun ex C. H. Hu.

Herbs slender, diffuse, 10–40 cm tall. Stems prostrate, villous, rooting adventitiously at base. Petiole 3–15 mm; leaf blade ovate to ovate-lanceolate, 1–3.5 × 0.5–2 cm, herbaceous, sparsely fine pilose, adaxially puberulent on midrib, base broadly cuneate, margin crenate-serrate above base, apex acute to obtuse. Spikes ovoid in flower, 1.5–2.5 × to 2 cm, cylindrical in fruit; verticillasters dense, pilose, secund, 4–6 flowered; bracts broadly ovate, 3–4 × 4–5 mm, adaxially glabrous, margin entire, ciliate, apex subulate-mucronate. Pedicel ca. 0.5 mm. Calyx tubular, ca. 1.5 mm, pilose, glandular outside; teeth subequal, lanceolate-triangular, nearly as long as calyx tube, apex spinescent. Corolla white to purple, ca. 7 mm, pilose outside, glabrous inside, throat ca. 2 mm wide; upper lip emarginate; lower lip ± patent, middle lobe entire or emarginate; lateral lobes semicircular, margin entire. Stamens much exerted. Style ca. as long as stamens. Nutlets chestnut brown, oblong, pubescent. Fl. and fr. Oct–Dec.

• Riverbanks, forests, valleys, wet areas; 1200–2800 m. Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, Yunnan [Myanmar].

Young shoots edible.

26. *Elsholtzia pygmaea* W. Smith, Notes Roy. Bot. Gard. Edinburgh 12: 204. 1920.

矮香薷 ai xiang ru

Herbs annual. Stems 2.5–7 cm, closely strigose except for glabrous base, densely leaved. Petiole 2–3 mm; leaf blade linear to linear-lanceolate, 1–1.5 cm × 2 mm, minutely scabrous, abaxially often purplish, base attenuate, margin obscurely remote serrate, apex obtuse. Spikes usually solitary, secund; bracts obovate, ca. 4 × 2.5 mm, dark purple, margin ciliate, apex cuspidate, pubescent abaxially. Calyx tubular, ca. 2 mm, sparsely minutely pilose, margin white ciliate; teeth triangular, as long as tube. Corolla deep rose-purple, paler at base, salverform, ca. 8 mm, sparsely minutely pilose. Stamens and style exerted from corolla (specimens not seen).

• Yunnan (Lijiang Xian).

27. *Elsholtzia oldhami* Hemsley, J. Linn. Soc., Bot. 26: 277. 1890.

台湾香薷 tai wan xiang ru

Herbs cobwebby pubescent. Stems with numerous ascending branches. Petiole 1.3–1.9 cm; leaf blade papery or ± membranous, ovate-lanceolate, 2.5–6.5 cm, sparsely minute hispid adaxially, sparsely fine cobwebby pubescent abaxially, base rounded to subcuneate, margin coarsely serrate-dentate, apex acuminate; lateral veins ca. 5-paired, conspicuous adaxially. Spikes axillary, 4-ranked when young, secund when mature, solitary, to 2.5 cm, dense, subsessile; bracts broadly spatulate-orbicular, pubescent, apex abruptly

acuminate. Flowers minute (open flowers not seen). Calyx pubescent outside, glabrous inside, teeth subequal. Corolla 4-lobed, upper lobe or lip emarginate. Stamens glabrous; anthers distinctly 2-locellate (specimens not seen).

- Taiwan.

The 4-ranked bracts in the protologue are an artifact of the immature state of the type collection. This and species 28–33 of this account are very closely related.

28. *Elsholtzia saxatilis* (V. Komarov) Nakai ex Kitagawa, Rep. Inst. Sci. Res. Manchoukuo 1: 266. 1937.

岩生香薷 *yan sheng xiang ru*

Elsholtzia cristata Willdenowf. *saxatilis* V. Komarov, Trudy Imp. S. Peterburgsk. Bot. Sada 25: 390. 1907; *E. angustifolia* Loesener; *E. pseudocristata* H. Léveillé & Vaniot var. *saxatilis* (V. Komarov) P. Y. Fu.

Herbs. Stems erect, 10–20 cm tall, densely puberulent, much branched. Petiole 2–5 mm, puberulent; leaf blade lanceolate to linear-lanceolate, 1–4.5 cm × 1–10 mm, purplish, sparsely puberulent, densely impressed glandular abaxially, base cuneate decurrent, margin remotely to obscurely serrate, apex acuminate to subobtusate. Spikes 1–2(–2.5) cm, indistinctly secund; bracts broadly ovate, ca. 4 × 6 mm, glabrous, sparsely glandular abaxially, purplish veined, margin ciliate, apex abruptly mucronate. Calyx tubular, villous outside; teeth lanceolate, subequal, apex spinescent. Corolla rose-purple, ca. 2.5 × as long as calyx, tube villous, upper lip emarginate, middle lobe of lower lip subcircular; lateral lobes semicircular, margin entire. Nutlets chestnut brown, oblong. Fl. Sep–Oct, fr. Oct–Nov.

- Rocky crevices. Heilongjiang, Jilin, Liaoning, Shandong [Japan, Korea, Russia].

29. *Elsholtzia splendens* Nakai ex F. Maekawa, Bot. Mag. (Tokyo) 48: 50. 1934.

海洲香薷 *hai zhou xiang ru*

Elsholtzia angustifolia (Loesener) Kitagawa; *E. cristata* Willdenow var. *angustifolia* Loesener; *E. haichowensis* Sun ex C. H. Hu; *E. loeseneri* Handel-Mazzetti; *E. lungtangensis* Sun ex C. H. Hu; *E. pseudocristata* H. Léveillé & Vaniot var. *angustifolia* (Loesener) P. Y. Fu.

Herbs erect. Stems 30–50 cm, much branched above base, tawny purple; branches erect-patent; internodes 2–12 cm, with 2 rows of pilose hairs. Petiole 0.5–1.5 cm, gradually shorter upward, adaxially pubescent; leaf blade ovate-triangular to oblong-lanceolate, 3–6 × 0.8–2.5 cm, sparsely fine pilose, densely impressed glandular abaxially, base cuneate, decurrent, margin remotely serrate, apex acuminate. Spikes dense, 3.5–4.5 cm, secund; rachis pubescent; bracts subcircular to broadly ovate, ca. 5 × 6–7 mm, caudate-cuspidate, glabrous, sparsely glandular, tinged purple, margin ciliate, apex 1–1.5 mm. Pedicel less than 1 mm, subglabrous. Calyx 2–2.5 mm, white hispidulous, glandular; teeth triangular, subequal, margin ciliate, apex spinescent. Corolla rose-purple, 6–7 mm, slightly incurved, subfunnel-form, throat less than 2 mm wide, upper lip emarginate; middle lobe of lower lip circular, margin entire; lateral lobes truncate or subcircular. Nutlets dark brown, oblong, ca. 1.5 mm, tuberculate. Fl. and fr. Sep–Nov.

- Hills, grassy areas; 200–300 m. Guangdong, Hebei, Henan, Hubei, Jiangsu, Jiangxi, Liaoning, Shandong, Zhejiang [Korea].

Used medicinally.

30. *Elsholtzia argyi* H. Léveillé, Repert. Spec. Nov. Regni Veg. 8: 425. 1910.

紫花香薷 *zi hua xiang ru*

E. macrostemon Handel-Mazzetti.

Herbs 50–100 cm tall. Stems purple, white pubescent on grooves. Petiole 0.8–2.5 cm, narrowly winged; leaf blade ovate to broadly ovate, 2–6 × 1–3 cm, adaxially pilose, abaxially impressed glandular, white pubescent on veins, base rounded to broadly cuneate, margin crenate or crenate-serrate, entire near base, apex short acuminate. Spikes 2–7 cm, secund; verticillasters 8-flowered; bracts circular, ca. 5 × 5 mm, apex abruptly spinescent, spines to 2 mm, abaxially white villous, yellow glandular, purplish, glabrous adaxially, margin ciliate. Pedicel ca. 1 mm. Calyx tubular, ca. 2.5 mm, white villous outside; teeth subulate, subequal, apex spinescent, margin ciliate. Corolla rose-purple, ca. 6 mm, white villous outside, glandular at apex, throat to 2 mm wide; upper lip emarginate, margin villous; lower lip slightly spreading, middle lobe oblong, apex usually mucronate; lateral lobes arcuate. Anthers dark purple. Nutlets dark brown, oblong, ca. 1 mm, minutely tuberculate. Fl. and fr. Sep–Nov.

Hilly thickets, forests, streamsides, riverside grasslands; 200–1200 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Sichuan, Zhejiang [Japan, Vietnam (cultivated)].

31. *Elsholtzia souliei* H. Léveillé, Repert. Spec. Nov. Regni Veg. 9: 218. 1911.

川滇香薷 *chuan dian xiang ru*

Herbs erect, 10–50 cm tall. Stems pyramidally branched from base; branches at 45°, white floccose. Petiole 2–8 mm, white floccose; leaf blade lanceolate, 0.3–2(–4) cm × 2–4(–13) mm, adaxially sometimes tinged purplish red, puberulent, abaxially villous, yellowish glandular, base attenuate, margin serrate, apex acuminate. Spikes 1.2–4 cm; verticillasters many flowered; bracts subcircular, ca. 4.5 × 4 mm, white villous abaxially, glabrous adaxially, purplish veined, margin ciliate, apex mucronate. Calyx tubular, ca. 2.5 mm, white villous, glandular outside; anterior teeth longer, apex spinescent, margin ciliate. Corolla purple, ca. 6 mm, white villous, glandular outside; upper lip emarginate, margin densely villous; lower lip slightly spreading, middle lobe circular, margin entire, apex mucronate; lateral lobes arcuate, margin sparsely ciliate. Anthers dark purple. Nutlets dark brown, oblong, ca. 1.2 mm. Fl. and fr. Sep–Nov.

- Hills, grassy areas; 2800–3300 m. Sichuan, Yunnan.

Used medicinally.

32. *Elsholtzia feddei* H. Léveillé, Repert. Spec. Nov. Regni Veg. 9: 218. 1911.

高原香薷 *gao yuan xiang ru*

Elsholtzia feddei f. *heterophylla* C. Y. Wu & S. C. Huang; *E. feddei* f. *remotibracteata* C. Y. Wu & S. C. Huang; *E. feddei* f. *robusta* C. Y. Wu & S. C. Huang.

Herbs 3–20 cm tall. Stems branched from base; branches prostrate or ascending, pubescent. Petiole 2–8 mm, pubescent;

leaf blade ovate to oblong, sometimes obovate, 0.4–2.4 cm × 3–14 mm, densely pubescent, sometimes purplish abaxially, sparsely or obscurely glandular, base rounded to broadly cuneate, margin crenate, apex obtuse. Spikes 1–1.5 cm, secund; verticillasters many flowered; rachis white villous; bracts circular, ca. 3 × 3 mm, margin ciliate, apex mucronate, villous especially on veins abaxially, glabrous adaxially, purple veined. Pedicel white villous. Calyx tubular, ca. 2 mm, white villous outside; teeth lanceolate-subulate, ciliate; anterior teeth longer, apex spinescent. Corolla rose-purple, ca. 8 mm, villous, sparsely glandular outside; tube funnelform; upper lip emarginate, margin ciliate; lower lip ± spreading, middle lobe circular, margin entire; lateral lobes arcuate. Nutlets dark brown, oblong, ca. 1 mm. Fl. and fr. Sep–Nov.

• Grassy hills, valleys, forests; 500–3200 m. Gansu, Hebei, Qinghai, Shaanxi, Shanxi, Sichuan, Xizang, Yunnan.

Used medicinally.

33. *Elsholtzia ciliata* (Thunberg) Hylander, Bot. Not. 1941: 129. 1941.

香薷 *xiang ru*

Sideritis ciliata Thunberg, Syst. Veg., ed. 14, 532. 1784; *Elsholtzia ciliata* var. *brevipes* C. Y. Wu & S. C. Huang; *E. ciliata* var. *depauperata* C. Y. Wu & S. C. Huang; *E. ciliata* var. *ramosa* (Nakai) C. Y. Wu & H. W. Li; *E. ciliata* var. *remota* C. Y. Wu & S. C. Huang; *E. cristata* Willdenow; *E. formosana* Hayata; *E. minina* Nakai; *E. patrini* (Lepechin) Garcke; *E. patrini* var. *ramosa* Nakai; *E. pseudocristata* H. Léveillé & Vaniot; *Hyssopus ocyimifolius* Lamarck; *Mentha baicalensis* Georgi; *M. cristata* Buchanan-Hamilton ex D. Don; *M. ovata* Cavanilles; *M. patrini* Lepechin; *Perilla polystachys* D. Don.

Herbs erect, 30–50 cm tall. Stems glabrous or pilose, stramineous, purple-brown with age. Petiole 0.5–3.5 cm, narrowly winged; leaf blade ovate to elliptic-lanceolate, 3–9 × 1–4 cm, sparsely minutely hispid, adaxially sparsely resinous glandular, base cuneate decurrent, margin serrate, apex acuminate. Spikes 2–7 × to 1.3 cm, secund; verticillasters many flowered; bracts broadly ovate to oblate, ca. 4 × 4 mm, subglabrous to puberulent, sparsely resinous glandular abaxially, glabrous adaxially, ciliate or ciliolate, apical mucro to 2 mm. Pedicel ca. 1.2 mm, subglabrous, densely white pubescent. Calyx ca. 1.5 mm, pilose, sparsely glandular outside, glabrous inside; teeth triangular, anterior longer, needlelike, ciliate. Corolla purplish, ca. 4.5 mm, villous outside, sparsely glandular on posterior side; throat pilose, ca. 1.2 mm wide; upper lip emarginate; middle lobe of lower lip semicircular, lateral lobes arcuate, shorter than middle lobe. Anthers purple-black. Style included. Nutlets yellow-brown, oblong, ca. 1 mm. Fl. Jul–Oct, fr. Oct–Jan.

Hills, waste areas, sunny terraces, riverbanks, forests; 0–3400 m. In all provinces except Qinghai and Xinjiang [Cambodia, India, Japan, Laos, Malaysia, Mongolia, Myanmar, Russia, Thailand, Vietnam; introduced in Europe and North America].

Used medicinally.

