

68. THYMUS Linnaeus, Sp. Pl. 2: 590. 1753.

百里香属 *bai li xiang shu*

Subshrubs with slender branches arising from usually short, sometimes stout, woody stems. Leaves entire or 1–3-serrulate. Verticillasters in dense capitula or spikes. Flowers pedicellate. Calyx tubular-campanulate to narrowly campanulate, 10–13-veined, 2-lipped, throat white hairy annulate; upper lip spreading or straight, 3-toothed, teeth triangular to lanceolate; lower lip 2-toothed, teeth subulate. Corolla tube included or exerted, 2-lipped; upper lip straight, emarginate; lower lip spreading, 3-lobed, lobes subequal or middle lobe longer. Stamens 4, separate; anterior 2 longer, exerted or included; anther cells 2, parallel or divaricate. Style apex 2-cleft; lobes subulate, equal or subequal. Nutlets ovoid or oblong, smooth.

Some botanists recognize 300–400 species in Africa, Europe, and temperate Asia; others have suggested that many of these species should be treated as infraspecific taxa of *Thymus serpyllum* Linnaeus. China has at least 11 species, mainly N of the Huang He. Some botanists (e.g., Kamelin) have recorded several additional species from China: *T. dahuricus* Sergievskaya, *T. gobicus* Tscherneva, and *T. michaelis* Kamelin & Budantzev (syn. *T. mongolicus* Klokov, 1954, non (Ronniger) Ronniger), all fairly widespread, plus *T. petraeus* Sergievskaya, (Xinjiang) and *T. turczaninowii* Sergievskaya, (Nei Mongol). We have not examined material of these species.

Klokov (Fl. U.S.S.R. 21: 471. 1954) reported that fertile hybrids are common in areas of overlap between some species.

- 1a. Stems and branches distinctly 4-angled, with a line of hairs from base of each leaf; leaves distinctly crenate; teeth of upper calyx lip 3/5 as long as lip 1. *T. disjunctus*
- 1b. Stems and branches mostly terete, rarely indistinctly 4-angled, hairy throughout, or branches occasionally with a line of hairs from base of each leaf.
 - 2a. Inflorescences spicate or subcapitate; all upper branches fertile.
 - 3a. Stem internodes less than 1 cm; leaves hairy; inflorescences to 5 cm; plants monoecious 2. *T. manschuricus*
 - 3b. Stem internodes more than 2 cm; leaves glabrous or sparsely puberulent; inflorescences to 20 cm or more; plants gynodioecious 3. *T. marschallianus*
 - 2b. Inflorescences capitate or slightly elongated in fruit; some upper branches infertile.
 - 4a. Leaves hairy.
 - 5a. Fertile branchlets villous; stem with ascending sterile branches; leaves serrate 4. *T. amurensis*
 - 5b. Fertile branchlets pubescent; stem with trailing sterile branches; leaves entire 5. *T. curtus*
 - 4b. Leaves glabrous.
 - 6a. Leaves \pm asymmetrical 6. *T. inaequalis*
 - 6b. Leaves symmetrical.
 - 7a. Teeth of upper calyx lip triangular or subtriangular, less than 1/3 as long as upper lip.
 - 8a. Teeth of upper calyx lip not ciliate or only minutely hispid.
 - 9a. Leaf veins rather robust, elevated abaxially 9. *T. altaicus*
 - 9b. Leaf veins rather slender, slightly elevated abaxially 8. *T. mongolicus*
 - 8b. Teeth of upper calyx lip ciliate.
 - 10a. Leaves elliptic, rarely ovate 7. *T. proximus*
 - 10b. Leaves ovate 8. *T. mongolicus*
 - 7b. Teeth of upper calyx lip lanceolate.
 - 11a. Teeth of upper calyx lip not ciliate or only minutely hispid 9. *T. altaicus*
 - 11b. Teeth of upper calyx lip \pm ciliate, rarely not ciliate.
 - 12a. Stems slender, numerous, tufted, arising from robust rhizomatous base, ascending; leaves greenish when dry; calyx with distinctly raised veins 10. *T. nervulosus*
 - 12b. Stem robust or \pm trailing, obliquely ascending to horizontal; leaves brownish when dry; calyx with indistinctly raised veins 11. *T. quinquecostatus*

1. *Thymus disjunctus* Klokov, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 16: 295. 1954.

长齿白里香 *chang chi bai li xiang*

Stems slender, arcuate; fertile branchlets 2.5–8 cm, dark purple, with a retrorse line of hairs from base of each leaf; sterile branchlets terminal, lateral or arising from rhizome, trailing or ascending. Petiole to ca. 1/2 as long as blades; leaf blade oblong-elliptic, 0.6–2 cm \times 1.5–7 mm; basal leaves short petioled, 2–4 mm, glandular, mostly deciduous at anthesis, margin distinctly 2- or 3-crenate, ciliate; upper leaves subacute. Inflorescences capitate, verticillasters widely spaced. Pedicel to 3.5 mm, retrorse pubescent. Calyx tubular-campanulate, 5–6 mm, purplish or dark purple, base pilose, apex glabrous; teeth of upper lip ca. 3/5 as long as lip, narrowly lanceolate, margin minutely hispid. Corolla rose-purple, 1–1.2 cm. Nutlets ellipsoid, 0.7–0.8 \times 0.5–0.7 mm (specimens not seen).

Gravelly grasslands, sandy valleys. Heilongjiang, Jilin, Liaoning [Russia].

2. *Thymus manschuricus* Ronning, Repert. Spec. Nov. Regni Veg. 29: 96. 1931.

短节百里香 *duan jie bai li xiang*

Plants suberect. Fertile branchlets base somewhat woody, to 30 cm, 1.5–2 mm in diam., with small branchlets, spreading, densely hirsute, hairs 0.5–1 mm, internodes 0.9–1.1 cm. Leaves broadly rhombic-elliptic to elliptic, 0.8–1.2 cm \times 3–7 mm (including petioles), densely pilose, distinctly glandular, leaf axils with tufts of leaves 2.5–4 \times 1–2.5 mm. Inflorescences spicate, to 5 cm. Pedicel 2–4 mm. Calyx ca. 5 mm in flower, to 6 mm in fruit, with robust veins and glands, tube 2.5 mm, upper teeth triangular, ca. 1 mm, ciliate. Corolla rose, pilose, ca. 8 mm; tube narrowly funnellform, ca. 5 mm,

upper lip apex emarginate, lower lip \pm elongated (specimens not seen).

• Heilongjiang.

3. *Thymus marschallianus* Willdenow, Sp. Pl. 3: 141. 1800.

异株百里香 yi zhu bai li xiang

Plants gynodioecious. Stems short, much branched; vegetative shoots arising mostly from apical parts, \pm shorter, less numerous than fertile branches, pubescent; fertile branchlets to 30 cm, suberect to obliquely ascending, with small branchlets when larger, spreading or retrorse villous where bearing flowers, \pm pubescent elsewhere, leaf axils sometimes bearing tufts of small leaves. Leaves oblong-elliptic to linear-oblong, 1–2.8 cm \times 1–6.5 mm, glabrous or sparsely puberulent, distinctly glandular abaxially, base attenuate, margin entire or indistinctly 1- or 2-serrulate, not or only slightly involute, apex acute to obtuse. Verticillasters in spikes on apical part of fertile branchlets. Bisexual flowers well developed; pistillate flowers reduced. Pedicel 2–4.5(–5) mm, densely pubescent. Calyx tubular-campanulate, 2.5–3.5(–4) mm, spreading pilose, glandular in fruit; teeth of upper lip triangular, acute, ciliate. Corolla red-purple, purple, or white, pubescent, ca. 5 mm, exerted, lower lip spreading; corolla of pistillate flowers to 4 mm, lower lip nearly straight. Nutlets black-brown, ovoid, ca. 1 mm. Fl. and fr. Aug.

Stony slopes, basins, streamsides. Xinjiang [Kazakhstan, Kyrgyzstan, Russia].

4. *Thymus amurensis* Klokov, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 16: 299. 1954.

黑龙江百里香 hei long jiang bai li xiang

Stems slender, curved, branched at base, with ascending vegetative shoots at apex; fertile branches erect to ascending, 6–20 cm, internodes \pm elongated, \pm spreading densely villous. Basal leaves indistinctly petiolate, crowded, mostly ovate, 3–5 \times 1.3–1.5 mm, apex subobtusely; blade of mid stem leaves 0.5–1.5 cm \times 1.5–4.5 mm; petiole of upper leaves to 1/3 as long as blades; blade mostly oblong-elliptic, densely pubescent, with much longer hairs abaxially, glandular, margin serrate. Inflorescences capitate. Pedicel shorter than calyx, densely pubescent. Calyx narrowly campanulate, 3.8–5 mm, pubescent, apex dark purple; teeth of upper lip lanceolate, long ciliate. Corolla ca. 2 \times as long as calyx, rose-purple, \pm whitish when dry (specimens not seen).

Gravelly slopes. Heilongjiang [Russia].

5. *Thymus curtus* Klokov, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 16: 302. 1954.

短毛百里香 duan mao bai li xiang

Stems prostrate; fertile branchlets divaricate, 5–11 cm, with short, spreading or slightly recurved hairs, dark purple; large branches with up to 4 fertile branchlets on basal half. Petiole of stem leaves shorter to subequal to blades; leaf blade \pm oblong-elliptic, rarely elliptic to ovate, margin entire, lower 1/3 or more ciliate, densely short hairy, sparsely glandular; blade of stem leaves ovate toward stem base, 0.7–1.4 cm \times 1.5–6 mm. Inflorescences capitate, rather lax, of 1–3 widely spaced verticillasters. Pedicel 2–3 mm, pubescent. Calyx tubular-campanulate, 4.5–5 mm, dark purple, pubescent;

upper lip glabrous, teeth lanceolate, ciliate. Corolla rose-purple, ca. 7 mm, tube slender. Fl. Jul-Aug.

Gravelly slopes. Heilongjiang [Russia].

Perhaps only a minor variant of *Thymus amurensis*.

6. *Thymus inaequalis* Klokov, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 16: 303. 1954.

斜叶百里香 xie ye bai li xiang

Stems slender, arcuately curved; vegetative shoots arising from stem base or rhizome, slender, to 40 cm, ascending to prostrate, finely retrorse pilose; short branchlets sometimes with small axillary tufts of leaves, sometimes elongated, fertile. Leaves oblong to ovate, 3–12 \times 1–4 mm, glabrous, glandular, base attenuate, asymmetrical, margin 1–3-serrulate, lower 1/4–1/3 ciliate, apex acute to obtuse. Inflorescences capitate, loose, sometimes with undeveloped basal verticillasters; bracteoles subulate, to 4 mm, long ciliate. Pedicel 1–4 mm, densely pubescent. Calyx tubular-campanulate, 4–5 mm, base spreading pilose, apex glabrous or subglabrous; teeth of upper lip lanceolate to triangular, acute, ciliate. Corolla purplish, to 8 mm, pubescent, glandular. Stamens exerted or posterior 2 included. Fl. Jul-Aug.

Dry hills, grasslands, gravelly sunny slopes; 300–800 m. Heilongjiang, Nei Mongol [Russia].

Doubtfully distinct from *Thymus amurensis*.

7. *Thymus proximus* Sergievskaja, Sist. Zаметki Mater. Gerb. Krylova Tomsk. Gosud. Univ. Kujbyseva 10(6–7): 3. 1936.

拟百里香 ni bai li xiang

Stems trailing, slender, terete; fertile branches with a retrorse dense line of hairs from base of each leaf, 2–6 cm, sometimes with branchlets. Leaves elliptic, rarely ovate, 0.8–1.2 cm \times 3–5 mm, conspicuously glandular abaxially, base attenuate, margin entire or indistinctly serrulate, apex obtuse. Inflorescences capitate or slightly elongated, sometimes with undeveloped verticillasters below; floral leaves sessile, ovate or broadly ovate, margin sparsely ciliate at base. Pedicel 1–4 mm, densely retrorse pubescent. Calyx campanulate, 3.5–4.5 mm, base pilose, apex glabrous; teeth of upper lip triangular, ciliate. Corolla ca. 7 mm, pubescent. Stamens slightly exerted. Fl. Jul-Aug.

Wet valleys, sunny hills; 2000–2100 m. Xinjiang [Kazakhstan, Russia].

8. *Thymus mongolicus* (Ronniger) Ronniger, Acta Horti Gothob. 9: 99. 1934.

百里香 bai li xiang

Thymus serpyllum Linnaeus var. *mongolicus* Ronniger, Notizbl. Bot. Gart. Berlin-Dahlen 10: 890. 1930.

Stems numerous, trailing to ascending; vegetative shoots pubescent; fertile branches (1.5–)2–10 cm, densely retrorse pilose or slightly spreading pilose below inflorescences, sparsely fine pilose at base, 2–4-leaved. Petioles of lower stem leaves ca. 1/2 as long as blades; leaf blade ovate, 4–10 \times 2–4.5 mm, glabrous, \pm conspicuously glandular, base cuneate to attenuate, margin entire or 1- or 2-serrulate, apex obtuse to subacute. Inflorescences capitate; floral leaves ciliate on lower 1/3 of margin; bractlets deciduous at base.

Calyx tubular-campanulate to narrowly campanulate, 4–4.5 mm, base pilose, apex subglabrous; teeth of upper lip less than 1/3 as long as lip, triangular, ciliate or glabrous; lower lip as long as or longer than upper. Corolla purple-red, purple, or reddish, 6.5–8 mm, sparsely pubescent; tube elongated, 4–5 mm, slightly dilated upward. Nutlets subglobose to ovoid, compressed. Fl. Jul-Aug.

• Stony hills, slopes, grassy areas, valleys; 1100–3600 m. Gansu, Hebei, Nei Mongol, Qinghai, Shaanxi, Shanxi.

9. *Thymus altaicus* Klokov & Desjatova-Shostenko, Zhurn. Inst. Bot. Vseukrajins'k. Akad. Nauk. 10(18): 159. 1936.

阿尔泰百里香 a er tai bai li xiang

Thymus altaicus Sergievskaja.

Stems trailing to ascending; vegetative shoots ascending or trailing, pubescent; fertile branches ascending, mostly 4–8 cm, subglabrous, retrorse puberulent or pubescent below inflorescences, with 2–4 internodes. Leaves oblong-elliptic to ovate, rarely obovate, 5–10×1–3 mm, glabrous, base attenuate, margin entire, sparsely ciliate basally, apex obtuse to acute. Inflorescences capitate, sometimes with 1 or 2 undeveloped verticillasters; bractlets crowded at bases of branches, deciduous. Pedicel 1–4 mm, densely pubescent. Calyx campanulate, 3.5–4.5 mm, base pilose, apex glabrous; teeth of upper lip subtriangular to lanceolate, minutely hispid. Corolla red-purple, 5.5–6.5 mm, pubescent. Fl. Jul-Aug.

Streamsides, grasslands, gravelly areas; 1100–1400 m. Xinjiang [Russia].

10. *Thymus nervulosus* Klokov, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 16: 302. 1954.

显脉百里香 xian mai bai li xiang

Stems slender, tufted, ascending; vegetative shoots to 30 cm, slender, spreading, rarely trailing, retrorse pilose; fertile branches few, slender, more than 5 mm, ascending to erect, retrorse pilose on inflorescences, base finely pilose. Leaves short petiolate; petiole sparsely ciliate on basal 1/3; leaf blade of lower stem leaves broadly elliptic to ovate, 0.5–1.6 cm×1.5–5 mm, glabrous, base cuneate to attenuate, margin entire or 1- or 2-serrulate, sparsely ciliate, apex obtuse to acute. Inflorescences capitate, sometimes with widely spaced undeveloped verticillasters. Calyx tubular-campanulate, 4–5 mm, mostly pilose, conspicuously veined; teeth of upper lip lanceolate, ciliate, apex acuminate. Corolla 6–8 mm, pubescent, exserted. Fl. Jul.

Steppes, hills. Heilongjiang [Russia].

Perhaps a variant of *Thymus amurensis*.

11. *Thymus quinquecostatus* Celakovsky, Oesterr. Bot. Z. 39: 263. 1889.

地椒 di jiao

Stems obliquely ascending to subhorizontally spreading; vegetative shoots ± fewer than fertile branches, sparsely retrorse pilose; fertile branches numerous, crowded, 3–15 cm, erect to ascending, densely retrorse pilose below inflorescences, base sparsely fine pilose, internodes to 15, usually shorter than leaves. Leaves oblong-elliptic or oblong-lanceolate, rarely ovate to ovate-lanceolate, 0.7–1.3(–2) cm×1.5–3(–8) mm, ± leathery, glabrous, densely glandular, base attenuate, margin entire, revolute, ciliate on lower half or

only at base, apex obtuse to acute. Inflorescences capitate, sometimes oblong; floral leaves similar to stem leaves; bractlets usually deciduous. Pedicel to 4 mm. Calyx tubular-campanulate, 5–6 mm, base spreading pilose, apex glabrous; upper lip subequal to longer than lower lip, teeth lanceolate, to ca. 1/2 as long as lower lip, sometimes ciliate. Corolla 6.5–7 mm, tube shorter than calyx. Fl. Aug.

Gravelly areas, hills, riverbanks, rocky crevices, beaches, seashore dunes; 0–3500 m. Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi [Japan, Korea, Russia].

- 1a. Leaves lanceolate to linear-lanceolate, generally less than 2 mm wide 11c. var. *asiaticus*
- 1b. Leaves oblong-elliptic to broadly ovate-lanceolate, more than 2 mm wide.
 - 2a. Inflorescence rachis densely retrorse pilose; leaves oblong-elliptic to oblong-lanceolate, (1.5–)2–3(–4.5) mm wide, lateral veins 2- (or 3)-paired 11a. var. *quinquecostatus*
 - 2b. Inflorescence rachis densely pilose; leaves broadly ovate-lanceolate, 4–5 mm wide, lateral veins 3- or 4-paired 11b. var. *przewalskii*

11a. *Thymus quinquecostatus* var. *quinquecostatus*

地椒 di jiao

Leaves oblong-elliptic to oblong-lanceolate, (1.5–)2–3 (–4.5) mm wide, lateral veins 2- (or 3)-paired. Rachis of inflorescence densely retrorse pilose.

Hills, seashore dunes; 0–900 m. Hebei, Henan, Liaoning, Shandong, Shanxi [Japan, Korea].

11b. *Thymus quinquecostatus* var. *przewalskii* (V. Komarov) Ronniger, Acta Horti Gothob. 9: 100. 1934.

展毛变种 zhan mao bian zhong

Thymus serpyllum Linnaeus var. *przewalskii* V. Komarov, Trudy Imp. S. Peterburgsk. Bot. Sada 25: 379. 1907; *T. przewalskii* (V. Komarov) Nakai.

Leaves broadly ovate-lanceolate, 1–1.2 cm×4–5 mm, lateral veins 3- or 4-paired. Rachis of inflorescence densely pilose, hairs shorter than diam. of rachis.

Gravelly areas, grassy hills, sandy riverbanks, sandy beaches, rocky crevices; 600–3500 m. Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Shaanxi, Shanxi [Korea, Russia].

Perhaps conspecific with *Thymus mandschuricus*.

11c. *Thymus quinquecostatus* var. *asiaticus* (Kitagawa) C. Y. Wu & Y. C. Huang, Fl. Reipubl. Popularis Sin. 66: 259. 1977.

亚洲变种 ya zhou bian zhong

Thymus serpyllum Linnaeus var. *asiaticus* Kitagawa, Rep. First Sci. Exped. Manch. IV. 4: 92. 1936; *T. asiaticus* (Kitagawa) Kitagawa.

Leaves lanceolate to linear-lanceolate, generally less than 2 mm wide.

• Dry hills; 600 m. Nei Mongol.

