

2. LYCIUM Linnaeus, Sp. Pl. 1: 191. 1753.

枸杞属 *gou qi shu*

Shrubs, often armed with thorns, pubescent with simple hairs. Leaves usually fasciculate on short shoots, petiolate or subsessile; leaf blade small, plane or linear-cylindric, entire. Inflorescences solitary or fasciculate axillary flowers; peduncle absent. Flowers pedicellate. Calyx campanulate, 2- or 5-dentate or -lobed. Corolla funnellform or campanulate; tube short, limb usually (4- or) 5-lobed, enlarged at throat. Stamens inserted high in corolla tube, included or exerted; anthers oblong-elliptic, dehiscing longitudinally. Ovary 2-locular; ovules 1 to many. Style slender. Berry red, orange, yellow, or black, globose, ovoid, or oblong, fleshy or juicy; fruiting calyx slightly enlarged. Seeds numerous or few, compressed, pitted.

About 80 species: South America, S Africa, a few in temperate Europe and Asia; seven species in China.

Lycium cochinchinense Loureiro (Fl. Cochinch. 1: 134. 1790) is excluded from this treatment. According to Merrill (Trans. Amer. Acad. n.s., 24: 401. 1935), "it is clearly not a *Lycium* and is not a solanaceous plant." While this name, with its early publication date, may have priority for some Chinese plant, it is unlikely to affect names in *Lycium*.

- 1a. Berry purple-black, globose; thorns occurring singly at nodes; leaves narrowly linear, fleshy; corolla tube 3–4× as long as limb and lobes; filaments pubescent 1. *L. ruthenicum*
- 1b. Berry red or orange-yellow, elongated or sometimes globose; thorns usually clustered with leaves and flowers, rarely lacking; leaves broader, linear-lanceolate, lanceolate, or elliptic, fleshy or not; corolla tube ca. 2 × as long as limb and lobes or shorter; filaments glabrous or pubescent.
 - 2a. Corolla lobed about 1/4 way down; filaments sparsely pubescent near base.
 - 3a. Branches slender, flexible; leaves narrow, widest near middle; calyx truncate at apex or unequally divided, lobes not ciliate; apex of young fruit mucronate from a persistent style 2. *L. truncatum*
 - 3b. Branches stout, stiff; leaves usually oblanceolate, sometimes broadly so; calyx lobed halfway down, lobes usually ciliate; apex of young fruit rounded 3. *L. dasystemum*
 - 2b. Corolla lobed 1/3 way down or more; filaments and corolla with a villous ring just above point of insertion.
 - 4a. Corolla less than 7 mm; stamens manifestly exceeding corolla; seeds ca. 1 mm; berry globose, ca. 4 mm 7. *L. yunnanense*
 - 4b. Corolla more than 9 mm; stamens shorter than or slightly exceeding corolla; seeds 2–3 mm; berry oblong or ellipsoid, more than 5 mm.
 - 5a. Calyx usually 2-lobed; corolla lobes marginally glabrescent, tube and limb funnellform, obviously longer than lobes 4. *L. barbarum*
 - 5b. Calyx usually 3-lobed or 4- or 5-dentate; corolla lobes marginally pubescent, tube cylindric or funnellform, about as long as lobes.
 - 6a. Corolla tube cylindric, longer than lobes; leaves lanceolate 5. *L. cylindricum*
 - 6b. Corolla tube funnellform, shorter than or subequaling lobes; leaves mostly broadly or narrowly ovate, rhomboid, or elliptic 6. *L. chinense*

1. *Lycium ruthenicum* Murray, Comm. Gött. 2: 9. 1780.

黑果枸杞 *hei guo gou qi*

Shrubs 20–50(–100) cm tall, copiously armed. Stems much branched; branches grayish or whitish, erect, ascending, or prostrate; branchlets apically thorny; thorns 3–15 mm, inserted on nodes. Leaves subsessile, solitary on young branches, in fascicles of 2–6 on short shoots in older growth; leaf blade grayish, succulent, linear or subcylindric, rarely linear-oblanceolate, 0.5–3 cm×2–7 mm. Flowers 1 or 2 on short shoots. Pedicel 5–10 mm. Calyx narrowly campanulate, 4–5 mm, irregularly 2–4-lobed, lobes sparsely ciliate. Corolla pale purple, funnellform, ca. 1.2 cm; lobes oblong ovate, 1/3–1/2 as long as corolla tube, not ciliate. Stamens slightly exerted; filaments sparsely villous above base. Fruiting calyx slightly inflated. Berry purple-black, globose, sometimes emarginate, 6–9 mm in diam. Seeds brown, ca. 1.5×2 mm. Fl. May-Aug, fr. Aug-Oct.

Saline deserts and sands, roadsides; 400–3000 m. Gansu, Nei Mongol, Ningxia, Qinghai, N Shaanxi, Xinjiang, Xizang [Afghanistan, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Russia, Tajikistan, Turkmenistan, Uzbekistan; SW Asia, Europe].

A fine-leaved, branched, drought-enduring shrub that is used in erosion control.

2. *Lycium truncatum* Y. C. Wang, Contr. Inst. Bot. Natl. Acad. Peiping 2(4): 104. 1934.

截萼枸杞 *jie e gou qi*

Shrubs 1–1.5 m tall, sparingly armed. Branches flexible. Leaves solitary on long shoots, clustered on short shoots; leaf blade linear-lanceolate or lanceolate, 1.5–2.6 cm×2–6 mm, base cuneate, decurrent, apex acute, mid vein evident. Inflorescences axillary, 1–3-flowered clusters on short shoots. Pedicel 1–1.5 cm. Calyx campanulate, 3–4× 3 mm, 2- or 3-lobed or truncate, sometimes circumscissile and only base persistent. Corolla purple or reddish purple, tube ca. 8 mm; lobes ca. 4 mm, not ciliate. Stamens and style slightly exerted; filaments sparsely villous slightly above base. Berry oblong or oblong-ovoid, 5–8 mm, mucronate. Seeds orange, ca. 2 mm. Fl. May-Aug, fr. Aug-Oct.

Slopes, near roads or fields, disturbed places in dry regions; 800–1500 m. Gansu, Nei Mongol, Ningxia, N Shaanxi, Shanxi, Xinjiang [Mongolia].

3. *Lycium dasystemum* Pojarkova, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 13: 268. 1950.

新疆枸杞 *xin jiang gou qi*

Lycium dasystemum var. *rubricaulium* A. M. Lu.

Shrubs ca. 1.5 m tall. Stems much branched; branches grayish white, yellowish, or rarely brown-red, stout, young branches slender, elongate, older growth with formid-able thorns 0.6–6 cm in leaf and flower fascicles. Leaf blade lanceolate, oblanceolate, or broadly lanceolate, 1.5–6×0.5–1.5 cm, base cuneate or subdecurrent, apex acute or obtuse. Pedicel 1–1.8 cm. Calyx campanulate, ca. 4 mm, often 2- or

3-divided halfway. Corolla purple, funnellform, 0.9–1.3 cm; tube sparingly villous inside; lobes ovate, half as long as corolla tube, ciliolate. Stamens slightly exerted from spreading corolla lobes; filaments sparsely villous slightly above base. Berry red, ovoid, or oblong 1–1.2 cm × 5–8 mm. Seeds more than 20, 1.5–2 mm. Fl. Jun-Aug, fr. Aug-Sep.

Slopes, sands, oases; 200–3600 m. Gansu, Qinghai, Xinjiang [Afghanistan, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan].

Separation of this species from *Lycium turcomanicum* Boiss. (= *L. depressum* Stocks) follows Pojarkova (l.c.), who placed the two species in different series. She indicated that in *L. dasystemum* the filament base and adjacent corolla tube are pubescent and the 10–22 seeds are 1.5–2 mm in diam., while in *L. turcomanicum* the filament base and corolla tube are glabrous and the (2–)5–15 seeds are 2–3 mm in diam. The two taxa occupy a continuous geographic area, and the differences may be only quantitative in nature. Further work is needed to verify that *L. dasystemum* is really a distinct species.

Specimens with brown-red branches from Qinghai, which were described as *Lycium dasystemum* var. *rubricaulum*, appear to represent a local variant or abnormal suite of specimens rather than a distinct taxon.

4. *Lycium barbarum* Linnaeus, Sp. Pl. 1: 192. 1753.

宁夏枸杞 ning xia gou qi

Shrubs (small tree in cultivation) 0.8–2 m tall. Stems and branches glabrous, branches thorny. Leaves solitary or fasciculate, lanceolate or long elliptic, 2–3 cm × 3–6 mm. Inflorescences solitary or clustered flowers. Pedicel 1–2 cm. Calyx campanulate, 4–5 mm, usually 2-lobed, lobes 2- or 3-toothed at apex. Corolla purple, funnellform; tube 8–10 mm, obviously longer than limb and lobes; lobes 5–6 mm, spreading, margin glabrescent. Stamens and style slightly exerted. Berry red or orange-yellow, oblong or ovoid, 0.4–2 cm × 5–10 mm. Seeds usually 4–20, brown-yellow, ca. 2 mm.

- 1a. Leaves broad, membranous or papery; seeds more than 15; berries red 4a. var. *barbarum*
1b. Leaves narrow, fleshy; seeds 4–8; berries orange yellow 4b. var. *auranticarpum*

4a. *Lycium barbarum* var. *barbarum*

宁夏枸杞 ning xia gou qi

Lycium halimifolium Miller; *L. lanceolatum* Veillard; *L. turbinatum* Veillard; *L. vulgare* Dunal.

Leaves broad, membranous or papery. Berries red, 6–10 mm in diam. Seeds more than 15. Fl. May-Aug, fr. Aug-Nov.

Slopes, near fields and houses or by ditches. Gansu, N Hebei, Nei Mongol, Ningxia, Qinghai, N Shanxi, Sichuan, Xinjiang [cultivated and naturalized elsewhere in Asia and in Europe].

Widely cultivated for medicine in N and S China, especially in Ningxia and Tianjin Shi. The fruits are used medicinally as a tonic.

4b. *Lycium barbarum* var. *auranticarpum* K. F. Ching, Fl. Reipubl. Popularis Sin. 67(1): 158. 1978.

黄果枸杞 huang guo gou qi

Leaf blade narrow, fleshy. Berries orange-yellow, 4–8 mm in diam. Seeds 4–8.

- Ningxia (Yingchuan Shi).

5. *Lycium cylindricum* Kuang & A. M. Lu, Fl. Reipubl. Popularis Sin. 67(1): 158. 1978.

柱筒枸杞 zhu tong gou qi

Branches inflexed, with thorns 1–3 cm. Leaves solitary or in clusters of 2 or 3 on short shoots; leaf blade lanceolate, 1.5–3.5 cm × 3–6 mm, base cuneate, apex obtuse. Inflorescences solitary or 2 in a cluster with leaves. Pedicel ca. 1 cm. Calyx campanulate, ca. 3 × 3 mm, usually (2- or) 3-divided to halfway, lobes sometimes with irregular teeth. Corolla tube cylindrical, obviously longer than lobes, 5–6 mm, ca. 2.5 mm in diam.; lobes broadly ovate, ca. 4 mm, margin pubescent. Filaments with dense, villous, interwoven hairs slightly above base, forming a hairy circle with those on inner wall of corolla tube. Style ca. 8 mm. Berry ovoid, ca. 5 mm. Seeds few.

- Xinjiang.

6. *Lycium chinense* Miller, Gard. Dict. ed. 8, no. 5. 1768.

枸杞 gou qi

Shrubs erect or sprawling, 0.5–1(–2) m tall. Stems much branched; branches pale gray, slender, curved or pendulous, with thorns 0.5–2 cm. Leaves solitary or in clusters of 2–4; leaf blade ovate, rhombic, lanceolate, or linear-lanceolate, 1.5–5 × 0.5–2.5 cm (to 10 × 4 cm in cultivation). Inflorescences solitary or paired flowers on long shoots or fasciculate among leaves on short shoots. Pedicel 1–2 cm. Calyx campanulate, 3–4 mm, 3–5-divided to halfway, lobes densely ciliate. Corolla pale purple, 0.9–1.2 cm; tube funnel-form, shorter than or subequaling lobes, lobes pubescent at margin. Stamens slightly shorter or longer than corolla, with a villous ring slightly above filament base and adjacent corolla tube. Berry red, ovoid or oblong, 0.7–1.5 cm × 5–8 mm (ca. 2.2 × 1 cm in cultivation). Seeds numerous, yellow, 2.5–3 mm.

- 1a. Leaf blade ovate, rhombic, elliptic, or lanceolate; corolla lobes densely ciliate, with distinct basal auricles; stamens slightly shorter than corolla 6a. var. *chinense*
1b. Leaf blade lanceolate to linear-lanceolate; corolla lobes sparsely ciliate, with indistinct basal auricles; stamens slightly longer than corolla 6b. var. *potaninii*

6a. *Lycium chinense* var. *chinense*

枸杞 gou qi

Lycium barbarum var. *chinense* (Miller) Aiton; *L. chinense* var. *ovatum* (Poiret) C. K. Schneider; *L. megistocarpum* Dunal var. *ovatum* (Poiret) Dunal; *L. ovatum* Poiret; *L. rhombifolium* Dippel; *L. sinense* Grenier; *L. trewianum* Roemer & Schultes.

Leaves mostly broad. Corolla lobes densely ciliate, with distinct basal auricles. Stamens slightly shorter than corolla. Fl. May-Sep, fr. Aug-Nov.

Slopes, wastelands, saline places, roadsides, near houses. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Shaanxi, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, Korea, Nepal, Pakistan; Europe].

Widely cultivated in China as a medicinal plant or vegetable. The fruits are used as a tonic, the root bark is used for relieving cough and reducing fever, the young leaves are eaten as a vegetable, and the seed oil is used as a lubricant and for cooking. The species is also grown for controlling erosion.

6b. *Lycium chinense* var. *potaninii* (Pojarkova) A. M. Lu, Fl. Reipubl. Popularis Sin. 67(1): 16. 1978.

北方枸杞 bei fang gou qi

Lycium potaninii Pojarkova, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 13: 265. 1950.

Leaves lanceolate or linear-lanceolate. Corolla lobes sparsely ciliate, with indistinct auriculate basal lobes. Stamens slightly longer than corolla. Berry oblong, 2–2.5×1 cm. Fl. May-Sep, fr. Aug-Oct.

Sunny slopes, by ditches, occasionally cultivated. W Gansu, N Hebei, Nei Mongol, Ningxia, N Shaanxi, N Shanxi, E Qinghai, Xinjiang [Japan including Ryukyu Islands, S Mongolia, Thailand; SW Asia]. *Lycium flexicaule* Pojarkova, described from Kyrgyzstan, was said to differ from var. *potaninii* in having glabrescent branches, broader calyx lobes, and longer corolla tube. If it is actually different, it may be expected in China.

7. *Lycium yunnanense* Kuang & A. M. Lu, Fl. Reipubl. Popularis Sin. 67(1): 158. 1978.

云南枸杞 yun nan gou qi

Shrubs caespitose, erect, ca. 50 cm tall. Branchlets yellow-brown, thorny at apex. Leaves solitary on long shoots, sometimes on thorns or fasciculate on tubercular short shoots; petiole short; leaf blade narrowly ovate to lanceolate, 8–15×2–3 cm, base narrowly cuneate, apex acute. Inflorescences solitary flowers clustered with leaves. Pedicel 4–6 mm. Calyx campanulate, ca. 2 mm, usually 3-lobed or 3- or 4-dentate, tomentose at apex. Corolla pale blue-purple, purple, or occasionally white, funnelform, 5–7 mm; tube 3–4 mm; lobes 2–3 mm, glabrescent. Stamens inserted below middle of corolla tube, distinctly longer than corolla; filaments 5–7 mm, exserted, with villous hairs slightly above base, subglabrous on inner wall of corolla tube; anthers ca. 0.8 mm. Style 7–8 mm, exserted. Berry globose, ca. 4 mm in diam., yellow-red when ripe, with an obvious longitudinal furrow on drying. Seeds ca. 20, pale yellow, orbicular, ca. 1 mm in diam., pitted. Fl. Sep-Nov, fr. Oct-Feb.

• Wet places on sands, near rivers, forests, thickets; 700–1500 m. Yunnan.

