Phyla or China 17: 300–332. 1994.

SOLANACEAE
茄科 qie ke

Zhang Zhi-yun, Lu An-ming; William G. D’Arcy

Herbs, shrubs, small trees, or climbers. Stems sometimes prickly, rarely thorny; hairs simple, branched, or stellate, sometimes glandular. Leaves alternate, solitary or paired, simple or pinnately compound, without stipules; leaf blade entire, dentate, lobed, or divided. Inflorescences terminal, ovate, by continuing axes, appearing axillary, extra-axillary, or leaf opposite, often apparently umbellate, racemose, paniculate, clustered, or solitary flowers, rarely true cymes, sometimes bracteate. Flowers mostly divided, usually regular, 5-merous, rarely 4- or 6-9-merous. Calyx mostly lobed. Petals united. Stems as many as corolla lobes and alternate with them, inserted within corolla, all alike or 1 or more reduced; anthers dehiscing longitudinally or by apical pores. Style 1. Fruiting calyx often becoming enlarged, mostly persistent. Fruit a berry or capsule. Seeds with copious endosperm; embryo mostly curved.

About 95 genera with 2300 species: best represented in western tropical America, widespread in temperate and tropical regions; 20 genera (ten introduced) and 101 species in China.

Some species of Solanaceae are known in China only by plants cultivated in ornamental or specialty gardens: Atropa belladonna Linnaeus, Cyphomandra betacea (Cavanilles) Sendtner, Brugmansia suaveolens (Willdenow) Berchtold & Pirel, Nicotiana alata Link & Otto, and Solanum jasminoides Paxton.


1a. Flowers in several- to many-flowered inflorescences; peduncle mostly present and evident.

2a. Fruit enclosed in fruiting calyx.
3a. Plants copiously spiny; leaves much divided or lobed ............................................................ 13. Solanum
3b. Plants unarmed; leaves entire.
4a. Flowers in congested axillary clusters; disc conspicuous, red-orange; fruit a berry ............................ 10. Withania
4b. Flowers in racemes, spikes, or panicles, sometimes umbellate; disc not evident; fruit a capsule.
5a. Corolla zygomorphic, 2-lipped; fruiting calyx lobes mucronate, with strong marginal veins ..........6. Hyoscyamus
5b. Corolla actinomorphic; fruiting calyx lobes lacking mucros and strong marginal veins ................ 7. Physcochlaina

2b. Fruit exposed, exceeding fruiting calyx.
6a. Corolla tube much longer than lobes and limb; seeds not compressed, usually ovoid to ellipsoid; calyx not or hardly becoming enlarged.
7a. Fruit a few-seeded berry; flowers regular; plants puberulent or glabrescent; calyx less than 6 mm, shallowly lobed ........................................................................................................................................ 18. Cestrum
7b. Fruit a many-seeded capsule; flowers somewhat zygomorphic; plants mostly viscid glandular pubescent; calyx more than 6 mm, deeply lobed .................................................................................................................................. 19. Nicotiana
6b. Corolla tube much shorter than lobes and limb; seeds mostly compressed, discoid, reniform, or lenticular; calyx often becoming enlarged.
8a. Corolla yellow; anthers dehiscing longitudinally, with a slender, sterile apex; seeds pilose; flowers 5–9-merous ........................................................................................................................................ 15. Lycopersicon
8b. Corolla usually white, blue, or violet (if yellow then zygomorphic); anthers dehiscing by terminal pores, lacking a terminal appendage; seeds glabrous; flowers 4- or 5-merous ................................................................................................................................ 13. Solanum

1b. Flowers 1–3 per axil; peduncle absent or obsolete.
9a. Fruit enclosed in fruiting calyx, sometimes fused with it; herbs.
10a. Fruit a dry dehiscent capsule; flowering calyx more than 1.5 cm, lobed or divided halfway; corolla more than 2.5 cm.
11a. Stems mostly underground; normal leaves forming a rosette at stem apex, scaly leaves distributed along new stems; flowers mostly included within rosette ........................................................................................................ 5. Przewalskia
11b. Stems aboveground; normal leaves borne along stems, scaly leaves absent; flowers arising along stem or apically in leaf axils.
12a. Leaves mostly subsessile, petiole if present winged; pedicel less than 5 mm; calyx lobes sharp pointed, with noticeable marginal veins ........................................................................................................ 6. Hyoscyamus
12b. Leaves petiolate, petiole wingless; pedicel more than 5 mm; calyx lobes blunt, lacking marginal veins.
13a. Corolla zygomorphic, funnelform; stamens unequal; calyx lobes alike; fruiting pedicel not thickened ............................................................................................................................................... 4. Atropante
13b. Corolla regular, campanulate; stamens subequal; calyx lobes differing in size and/or shape; fruiting pedicel thickened ................................................................................................................................. 3. Anisodus

10b. Fruit a juicy or dry indehiscent berry; flowering calyx mostly less than 1.5 cm (if more than 1.5 cm then corolla more than 2 cm), deeply parted; corolla less than 2 cm.
14a. Corolla blue and white; fruiting calyx lobes free more than halfway down, each with 2 basal auricles; fruit a dry brown berry ........................................................................................................................................ 1. Nicandra
14b. Corolla yellow or white; fruiting calyx lobes united to near apex, lacking basal auricles; fruit a juicy, green, yellow, or orange berry.
15a. Fruiting calyx with thickened angles (ribs), bristly soft emergences that appear deltate on drying, or with both ................................................................. 8. Physaliastrum
15b. Fruiting calyx lacking emergences on ribs or walls, angles sometimes prominent but not thickened

9b. Fruit fully or mostly exposed, free from calyx; herbs, shrubs, or trees.

16a. Fruit a dry capsule; leaves entire, dentate, or lobed.
17a. Calyx 5-lobed, circumsicissile; fruit prickly or papillate, 4-valved or irregularly dehiscent; plants erect, mostly more than 60 cm tall; seeds discoid; corolla lobes pointed ........................................ 17. Datura
17b. Calyx 5-parted, persistent; fruit unarmend, lacking papillae, 2-valved, dehiscent; plants sprawling, if erect then less than 50 cm tall; seeds ovoid or oblong; corolla mostly with rounded lobes ...................... 20. Petunia
16b. Fruit a berry, often juicy; leaves entire.

18a. Corolla funnelform; stamens mostly exerted; shrubs, often thorny; leaves usually fasciculate on short shoots ................................................................. 2. Lycium
18b. Corolla campanulate, rotate, or stellate; stamens included; unarmed herbs or shrubs; leaves arising along stem or forming a basal rosette.

19a. Calyx with 5 well-developed apical lobes; fruit yellow to orange or black.
20a. Calyx becoming enlarged, wide flaring in fruit; leaves subsessile, usually forming a basal rosette; anthers dehiscing longitudinally ................................................................. 16. Mandragora
20b. Calyx not enlarged; leaves petiolate, arising along stem; anthers dehiscing by apical pores

19b. Calyx subtruncate, sometimes with 10 subapical teeth or umbros arising near base of apical rim; fruit red, sometimes yellow, purple, or pink in cultivation.
21a. Anthers dehiscing by apical pores; corolla rotate; plants sometimes pubescent with simple or branched hairs; calyx often with 10 subapical teeth ................................................................. 14. Lycianthes
21b. Anthers dehiscing longitudinally; corolla campanulate; plants glabrescent with sparse simple hairs; calyx 5-toothed or toothless.
22a. Corolla bright yellow; fruit a juicy globose berry; anther yellowish .................. 12. Tubocapsicum
22b. Corolla white, rarely blue or violet; fruit a dry variously shaped berry; anthers purplish

假酸浆属  jia suan jiang shu

Herbs, with simple and glandular hairs. Leaves petiolate; leaf blade simple. Flowers solitary, axillary or in branch forks, pedicellate, actinomorphic. Calyx campanulate, deeply 5-parted. Corolla campanulate, shallowly lobed; lobes ovate. Stamens included, inserted on corolla tube; filaments slender; anthers elliptic, dehiscing longitudinally. Ovary 3–5-locular; ovules numerous. Style filiform; stigma subcapitate, 3–5-lobed. Fruiting calyx conspicuously enlarged, persistent, enclosing fruit, lobes cordate-sagittate, each with 2 basal auriculate lobes. Berry globose, dry. Seeds reniform-discoid, compressed, pitted; embryo much curved, subperipheral, cotyledons sub cylindric.

Monotypic: widely cultivated or naturalized, also in China.

假酸浆 jia suan jiang


Stems erect, angular, 40–150 cm tall, glabrescent or sparsely pubescent. Petiole 1.5–6 cm; leaf blade ovate or elliptic, 4–20 × 2–13 cm, papery, sparsely pubescent on both surfaces, base cuneate, margin lobed or coarsely sinuate-dentate, apex acute or short acuminate. Pedicel 1.5–4 cm. Calyx 0.8–3 cm, deeply parted; lobes broadly ovate, apex acute, 2.5–4 cm in diam. Corolla pale blue, blue-purple, or bluish with white center, 2.5–4 cm wide. Berry brown or yellow, 1–2 cm in diam. Seeds pale brown, 1–1.2 mm in diam. Fl. summer, fr. autumn.

Near fields, houses, and hills, wastelands; 800–2600 m. Naturalized in Gansu, Guizhou, Hebei, Sichuan, Xinjiang, Xizang, Yunnan [widely distributed; native to Peru].

Whole plant used as a sedative and cough remedy.

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 funnelform 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

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 subcylindrical, rarely linear-oblancoate, 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 tube funneliform, ca. 1.2 cm; lobes oblong ovate, 1/3–1/2 as long as corolla tube, not ciliate. Stamens slightly exserted; 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, Qinhai, 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.


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 circumscribed and only base persistent. Corolla purple or reddish purple, tube ca. 8 mm; lobes ca. 4 mm, not ciliate. Stamens and style slightly exserted; filaments sparsely villous slightly above base. Berry oblong or oblong-ovoid, 3–5 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].


新疆枸杞  xinjiang gou qi

Lycium dasystemum var. rubricaullium 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, oblancoate, 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, funneliform, 0.9–1.3 cm; tube sparingly villous inside; lobes ovate, half as long as corolla tube, ciliolate. Stamens slightly exserted from spreading corolla lobes; filaments sparsely villous slightly above base. Berry red, ovoid, or oblong 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, Qingshail, Xinjiang [Afghanistan, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan].

Separation of these species from Lycium turcomanicum Boiss. (=L. depressum Stocks) follows Pojarkova (I.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. *rubricaulium*, appear to
represent a local variant or abnormal suite of specimens rather than a
distinct taxon.


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, funnelform; tube 8–10 mm,
obviously longer than limb and lobes; lobes 5–6 mm, spreading,
toothed at apex. Corolla tube cylindric, obviously longer than lobes, 5–6 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,

Slopes, near fields and houses or by ditches. Gansu, N Hebei, Nei
Mongol, Ningxia, Qihai, 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.


黄果枸杞 huang guo gou qi

Leaf blade narrow, fleshy. Berries orange-yellow,

• Ningxia (Yingchuan Shi).


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-
toothed at apex. Corolla purple, funnelform; tube 8–10 mm,
obviously longer than limb and lobes; lobes 5–6 mm, spreading,
toothed at apex. Corolla tube cylindric, obviously longer than lobes, 5–6 mm,
c. 2.5 mm in diam.; lobes broadly ovoid, 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.


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

1b. Leaf blade lanceolate to linear-lanceolate; corolla
lobes sparsely ciliate, with indistinct basal auricles;
stamens slightly longer than corolla

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

枸杞 gou qi

*Lycium barbarum* var. *chinense* (Miller) Aitont;
*L. chinense* var. *ovatum* (Poiret) C. K. Schneider;
*L. meigistocarpum* Dunal var. *ovatum* (Poiret) Dunal;
*L. ovatum* Poiret; *L. rhombifolium* Dippel; *L. sinense* Grenier;
*L. trevianum* 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.


北方枸杞 bei fang gou qi


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


云南枸杞 yun nan gou qi

Shrubs cespitose, 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.

Inflorences 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.

### 3. ANISODUS Link in Sprengel, Syst. Veg. 1: 699. 1825.

山莨菪属 shan lang dang shu

*Whiteya* Sweet.

Subshrubs or perennial herbs, glabrous or pubescent with simple and dendritic hairs. Roots stout, fleshy. Stems erect, obtusely angular, di- or trichotomously branched. Leaves solitary or paired, petiolate, simple, entire or coarsely dentate. Inflorences solitary flowers in leaf axils. Flowers mostly nodding, somewhat actinomorphic or calyx 2-lipped. Calyx mostly funnelform, evidently 10-veined, 4- or 5-lobed; lobes unequal, variable in shape and length. Corolla campanulate, lobes quincuncial, included or exserted from calyx. Stamens shorter than corolla, inserted near base of corolla tube; filaments usually glabrous at base; anthers dehiscing longitudinally. Ovary conical, 2-locular, with a disc-like nectary. Fruiting pedicel thickened or elongated. Fruiting calyx becoming enlarged, turbinate or campanulate, sometimes elongated beyond fruit, with main veins prominent and pleated. Fruit a globose or ovoid capsule, circumscissile above middle or dehiscent at apex. Seeds numerous, compressed.

Four species: China, Bhutan, India (Sikkim), Nepal; all four in China.


蛉铛子 ling dang zi

*Anisodus fischerianus* Pascher; *A. luridus* var. *fischerianus* (Pascher) C. Y. Wu & C. Chen; *A. mairei* (H. Lévêillé) C. Y. Wu & C. Chen; *A. stramonifolius* (Wallich) G. Don; *Nicandra anomala* (Link & Otto) Scoparia anomala (Link & Otto) Airy-Shaw; *S. lurida* (Link) Dunal; *S. mairei* H. Lévêillé; *S. stramonifolia* (Wallich) Shrestha; *Whiteya stramonifolia* (Wallich) Sweet. For a discussion of the nomenclature and additional synonymy of this species, see D’Arcy & Zhang, Novon 2: 125. 1992.

Plants 5–120 cm tall, sometimes yellow-brown tomentose. Petiole 2–4 cm; leaf blade ovate or elliptic, 7–15×(–22)×6–8.5×(–11) cm, papery, puberulent especially along veins, more so abaxially, base obtuse or slightly decurrent, margin entire or sinuate, apex acute. Flowers nodding. Pedicel 1–5 cm. Calyx campanulate to urceolate, 3–3.5 cm; ribs prominent, wavy, hisrate especially at base, apex sinuate or lobed; lobes short, sometimes unequal. Corolla pale yellow-green, ca. 3.5 cm, slightly exserted from calyx, pubescent adaxially and proximal to middle of tube abaxially, sometimes spotted adaxially; lobes slightly purplish, rounded. Filaments pubescent; anthers ca. 5 mm. Fruiting pedicel 2–2.5 cm, arching. Fruiting calyx twice as long as and enclosing capsule, ca. 5 cm; lobes indistinct, sometimes glabrescent. Fl. May-Aug, fr. Oct-Nov.

Grassy slopes and by streams in mountains; 3200–4200 m. Sichuan (Muli Xian), SE Xizang, NW Yunnan [Bhutan, India (Sikkim), Nepal].

The roots and seeds are used medicinally for alleviating pain and spasms. *Anisodus fischerianus* is placed into synonymy here based on the original description of the species, which does not include diagnostic features. Neither we nor the authors of the FRPS treatment, who recognized it as *A. luridus* var. *fischerianus*, have seen type material.


三分子 san fen zi

The roots and seeds are used medicinally for alleviating pain and spasms.
Plants 1–1.5 m tall, glabrous or glabrescent. Roots stout, yellow-brown, pale yellow within. Petiole 0.5–1(1.5) cm; leaf blade ovate or elliptic, 8–15 × 3–6 cm, papery or submembranous, base cuneate or slightly decurrent, margin entire, sinuate, or sometimes 1–3-toothed, apex acuminate. Pedicel ca. 2 cm. Calyx 3–4.5 cm, with 10 erect veins, glabrous or sparsely pubescent abaxially, irregularly 4- or 5-lobed; lobes narrowly deltate, 2 (or 3) of which are longer and larger, 2–2.5 cm. Corolla pale yellow-green, sometimes purplish; lobes purplish, similar to calyx in shape, barely exceeding calyx to about twice as long, 2.5–3(–4) cm, pubescent, with a purple spot at base of tube abaxially. Stamens included, about half as long as corolla; anthers 5–5.6 mm. Fruiting pedicel 5–7 cm. Fl. Jun-Aug, fr. Sep-Nov.

2a. Anisodus acutangulus var. acutangulus

三分子 san fen zi


- Grassy slopes, waste lands; 2800–3100 m. Sichuan, Yunnan.

1a. Calyx lobes and sinuses acute; leaves mostly entire; flowering calyx more than 3 cm, glabrous; corolla lobes pale yellow-green, long exserted, more than 2.5 cm ............................................

2b. var. breviflorus

1b. Calyx lobes short acute; leaves dentate; flowering calyx less than 2 cm, sometimes sparsely pubescent abaxially; corolla lobes pubescent, barely exserted, less than 2.5 cm ..................................

2b. Anisodus acutangulus var. breviflorus

三分子 qua san fen zi

Leaf blade with 1(–3) pairs of coarse teeth. Corolla mostly included, usually only barely exceeding calyx, lobes purplish. Fruiting pedicel to 7 cm. curved. Fruiting calyx 3.5–4.5 cm. Capsule nodding.

- Grassy slopes, waste lands; 2800–3100 m. Sichuan, Yunnan.

2a. Anisodus acutangulus var. acutangulus

三分子 qua san fen zi


- Grassy slopes, waste lands; 2800–3100 m. Sichuan, Yunnan.

2b. Anisodus acutangulus var. breviflorus

三分子 qua san fen zi

Leaf blade with 1(–3) pairs of coarse teeth. Corolla mostly included, usually only barely exceeding calyx, lobes pubescent. Fruiting pedicel to 5 cm. Fl. Jun-Jul, fr. Sep-Nov.

- Grassy woods, near edges of forests, wastelands, by stones near fields; 2900–3100 m. Sichuan, NW Yunnan.

The roots have similar but weaker medical effects than var. acutangulus.


- Grassy slopes; 40–80(–100) cm tall. Roots stout. Stems glabrous or pubescent. Petiole 1–3.5 cm; leaf blade lanceolate, oblanceolate, or ovate, 8–20 × 2.5–9 cm, thick papery, glabrous or rarely pubescent, entire or coarsely 1- or 2-toothed. Flowers nodding or erect; pedicel 1.5–8(–11) cm, glabrous or pubescent. Calyx campanulate to nearly funnelform, 2.5–4 cm; lobes broadly deltate, apex acute or obtuse, somewhat unequal, glabrous. Corolla purple or dark-purple, sometimes pale yellow-green, resembling calyx in shape, 2.5–3.8 cm, only limb exserted; tube pubescent adaxially, especially at base; lobes half rounded. Stamens less than half as long as corolla; filaments ca. 0.8 mm; anthers oblong, 5–6 mm. Style 1.2 cm. Fruiting pedicel 6–8 cm, erect. Fruiting calyx ca. 6–7.5 cm, with prominent ribs and netted veins. Capsule ca. 2 cm in diam. Fl. May–Jun, fr. Jul-Aug.


Monotypic: endemic to China.
This genus differs from Scopolia and Anisodus in its zygomorphic flowers, shape of calyx, and in other features. *Atropanthe mairei* (H. Léveillé) H. Léveillé was identified by Lauener (Notes Roy. Bot. Gard. Edinburgh 37: 147. 1978) as *Cyananthus altiflorus* Chamberlain, *Campanulaceae*.


天蓬子  

*tian peng zi*

Scopolia sinensis Hemsley, J. Linn. Soc., Bot. 26: 176. 1890; *Anisodus sinensis* (Hemsley) Pascher.

Plants 0.8–1.5 m tall. Stems usually dark blue-purple. Petiole 1–4.5 cm; leaf blade elliptic to ovate, 11–22 × 4–12 cm, papery, glabrous, base cuneate, slightly decurrent, apex acuminate, margin entire, sinuate, or dentate, glabrescent. Corolla yellow-green, ca. 3.2 cm, sparsely pubescent abaxially, pubescent adaxially at point of filament insertion; 1 lobe larger and semimorund, 2 lateral lobes deltate-rounded, remaining lobe rounded. Stamens included; filaments ca. 2 cm; anthers subcordate, 4–4.5 mm. Disc orange-red. Fruiting pedicel 3–3.5 cm. Fruiting calyx conical, ovoid, or oblong, 2.5–3 cm in diam., open at apex. Capsules 1.8–2 cm in diam. Seeds brown, ca. 3 × 2.5 mm, wavy-netted. Fl. Apr-Jul, fr. Aug-Sep.

- Humid places, along ditches, forests; 1400–3000 m. NW Guizhou, W Hubei, SE Sichuan, NE Yunnan.

A source of tropane alkaloids, the roots are used medicinally for relieving muscular spasm and pain.


马尿泡属  

*ma niao pao shu*


Monotypic: endemic to China.


马尿泡  

*ma niao pao*

*Mandragora shebbearei* C. Fischer; *Przewalskia roborowskii* Batalin; *P. shebbearei* (C. Fischer) Grubov.

Plants glandular hairy. Roots cylindric, 1–2.5 cm in diam. Stems 4–30 cm, partly underground. Petiole of upper leaves 2–5.5 cm; leaf blade elliptic, ovate, or spatulate, 10–17 × 1–4.5 cm, glandular hairy, glabrescent, remaining ciliate, base acuminate, margin entire, sinuate, or dentate, apex obtuse. Peduncle axillary, 2–3 mm. Pedicel 5–10 mm. Calyx ca. 15 × 5 mm; lobes deltate, unequal, 1–3 × 1.5–3 mm, glandular hairy, ciliate. Corolla limb yellow or violet, tube purple, ca. 2.5 cm; lobes ovate, ca. 4 × 3 mm. Filaments ca. 0.5 mm; anthers ca. 1.5 mm. Style exserted. Fruiting calyx elliptic or ovoid, 8–13 × 4–6.5 cm, subleathery. Capsules 1–2 cm in diam. Seeds black-brown, ca. 3 × 2.5 mm. Fl. Jun-Jul, fr. Jul-Sep.

- Sandy lands of alpine or dry grasslands and flood lands; 3200–5000 m. Gansu, Qinghai, Sichuan, Xizang.

The roots are used as a medicine for relieving muscular spasm, pain, and swelling.

*Mandragora shebbearei* is based on a collection (Xizang, Tinkyela) that was not seen.


天仙子属  

*tian xian zi shu*

Herbs annual, biennial, or perennial, erect or sprawling; pubescence of simple glandular hairs. Roots stout, fleshy. Stems short, stout. Leaves densely aggregated distally on stem; leaf blade entire, basal ones scalelike. Inflorescences clusters of 1–3(–6) axillary flowers, pedunculate or sessile. Flowers 5-merous, zygomorphic, sessile or short pedicellate. Calyx tubular-campanulate, urceolate, or obconical, becoming enlarged, lobes erect or spreading, needlelike. Corolla campanulate or funnelform, lobes unequal; Stamens inserted in corolla tube, usually slightly exserted; anthers dehiscing longitudinally. Disc sometimes indistinct. Ovary 2-locular; ovules numerous. Fruiting calyx enveloping and longer than capsule, lobes with strong marginal veins produced into mucros. Capsules dehiscent by an operculum slightly distal to middle. Seeds reniform or discoid, minutely pitted; embryo ringlike or coiled.

About 20 species: N Africa, Asia, Europe; two species in China, also cultivated.

1a. Fruiting calyx urceolate, lobes mostly erect; flowers 2–3 cm; corolla campanulate, twice as long as calyx.  

1b. Fruiting calyx tubular-funnelform, lobes spreading; flowers 1–1.5 cm; corolla funnelform, slightly exceeding calyx.

Alchemy grass  天仙子  tian xian zi

*Hyoscyamus agrestis* Kitaiibel ex Schultes; *H. bohemicus* F. W. Schmidt; *H. niger var. annuus* Sims; *H. niger var. chinensis* Makino.

Herbs biennial, to 1 m tall, pubescent throughout with sticky glandular hairs. Roots sometimes stout, fleshy, 2–3 cm in diam. Leaves sessile, sometimes forming a rosette; blade of rosette leaves ovate-lanceolate or oblong, ca. 30 × 10 cm, coarsely dentate or pinnately lobed or parted, apex acute; blade of cauline leaves ovate or deltate-ovate, 4–10 × 2–6 cm, pubescent with sticky hairs, nearly clasping or broadly cuneate at base, lobed or entire. Flowers subsessile or on pedicels 3–5 mm. Calyx tubular-campanulate, 1–1.5 cm; lobes deltate, unequal, acute. Corolla pale yellow, usually with purple veins, campanulate, 2–3 cm. Stamens exerted. Fruiting calyx urceolate, 2–2.5 × 1–1.5 cm; lobes mostly erect, tipped with a sharp tooth. Capsules ovoid-rounded, ca. 1.5 × 1.2 cm. Seeds yellow-brown, discoid, ca. 1 mm in diam. Fl. May-Aug. fr. Jul-Oct.

Slopes, near roads, sands by rivers, rich humus soils near villages and houses, occasionally cultivated; 700–3600 m. Gansu, Guizhou, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shanxi, Sichuan, Xinjiang, Yunnan [Afghanistan, Afghanistan, India, Pakistan, Russia, Tajikistan, Turkmenistan, Uzbekistan, SW Asia, N. Africa, Europe].

Alkaloids (hyoscyamine and scopoline) contained in the roots, leaves, and seeds, are used as an anaesthetic and for relieving muscular spasm and pain. The seed oil can be used for soap making.


Harvest 天仙子  zhong ya tian xian zi

Herbs annual, 6–35(–60) cm tall. Roots slender, woody. Stems prostrate or erect, branched or unbranched near base, mostly glandular pubescent, sometimes glabrescent. Leaf blade lanceolate, elliptic, or oblong, 3–10 × 0.5–3 cm, base decurrent, margin entire or dentate, sometimes pinnatifid or pinnatisect, with 2–4 pairs of deltate lobes, apex obtuse or acuminate. Flowers solitary, axillary, subsessile or on pedicels 3–5 mm. Calyx tubular-funnelform, 0.8–1.3 cm; lobes deltate, needlelike. Corolla yellow with a dark purple throat, funnelform, slightly longer than calyx. Stamens included. Fruiting calyx inflated, tubular-funnelform, 2–2.5 cm; lobes spreading. Capsules cylindric, ca. 7 mm. Seeds compressed reniform, ca. 1 mm. Fl. Apr-Jun, fr. Jun-Aug.

Dry gritty hills, edges of sand dunes, clay soils of wastelands, riverbanks, lake shores. Xinjiang, W Xizang [Afghanistan, India, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Russia, Tajikistan, Turkmenistan, Uzbekistan, SW Asia].

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Belaena Decaisne; Physochläna Miers.

Herbs perennial. Roots stout, fleshy; rhizomes thick, short. Stems erect, much branched. Leaves petiolate; leaf blade membranous, entire and sinuate or with a few deltate teeth. Inflorescences axillary or terminal, usually many flowered, paniculate or umbellate, usually pedunculate, rarely subsessile, mostly bracteate. Flowers actinomorphic, 5-merous. Calyx tubular-campanulate, funnelform, or tubular-urceolate. Corolla pale yellow, usually with purple veins; inflorescences bracteate.

About 11 species: Asia, six species in China.

1a. Inflorescences open, few flowers, with leaflike bracts or without bracts; capsules mostly more than 1 cm in diam.

1b. Inflorescences dense cymes or umbels, mostly with scalelike bracts; capsules less than 1 cm in diam.

2a. Leaves mostly larger than 14 × 8 cm; fruiting calyx membranous, cup-shaped, hardly contracted at apex, inflated at base; corolla dark purple; inflorescences without bracts ............................ 3. *P. macrophylla*

2b. Leaves mostly less than 12 × 7 cm; fruiting calyx thick papery, apex tubular, sometimes contracted, base appressed to capsule; corolla yellow with purple veins; inflorescences bracteate.

3a. Leaves entire; calyx ca. 1/3 as long as corolla; fruiting calyx contracted at apex ....................... 1. *P. praealta*

3b. Leaves with a few, coarse deltate teeth; calyx half as long as or longer than corolla; fruiting calyx terete, not contracted at apex ....................................................... 2. *P. macrocalyx*

4a. Flowers subsessile; fruiting pedicel less than 3 mm; inflorescences capitulate; stamens included ...... 6. *P. capitata*

4b. Flowers obviously pedicellate; fruiting pedicel more than 10 mm; inflorescences umbellate cymes; stamens included or slightly exerted.

5a. Fruiting calyx funnelform, much longer than capsule; calyx teeth spreading; corolla yellow, tube pale purple; leaves subdeltate, with a few coarse deltate teeth ........................................ 4. *P. infundibularis*

5b. Fruiting calyx broadly ovoid or subglobose, about as long as capsule; calyx teeth slightly inflexed; corolla purple; leaves usually ovate, entire ......................................... 5. *P. physaloides*


Shrubs or perennial or perhaps annual herbs; pubescence of simple hairs. Stems dichotomously branched. Leaves simple, petiolate. Inflorescences in branch forks, occasionally axillary, solitary or sometimes 2- or 3-flowered clusters; peduncle short or obsolete. Flowers mostly actinomorphic, 5-merous, long pedicellate, nodding. Calyx short campanulate or conical, lobed to halfway, lobes equal or not. Corolla broadly campanulate to rotate, lobed to halfway; lobes wide spreading, densely villous near base of tube, sometimes spotted. Nectaries sometimes present. Stamens inserted in corolla tube; filaments pubescent or glabrous; anthers dehiscing longitudinally. Disc rudimentary or absent. Ovary 2-locular; ovules numerous. Fruiting calyx becoming enlarged, applied to berry or inflated, mostly open at apex; veins obscure or thickened into angles or ribs, mostly muricate or bristly with soft emergences that appear deltate and scalelike when dry, these sometimes localized on angles. Fruit a juicy or fleshy berry enveloped in calyx. Seeds numerous, reniform-discoid, minutely pitted; embryo curved, subperipheral.

About nine species: Asia, seven species in China.

The genus *Archiphysalis*, which was recognized in FRPS, was placed into synonymy under *Physaliastrum* by D’Arcy & Zhang, Novon 2: 124–128, 1992. Many species were formerly known as *Chamaesaracha* A. Gray and *Leucophysalis* Rydberg, but these genera now include only New World taxa.

### 1. **Physaliastrum yunnanense**

- **Plants** 60–100 cm tall. Roots stout, ca. 2.5 cm in diam. Stems erect, woody at base, mostly unbranched. Petiole 1–3 cm; leaf blade elliptic, 5–15 × 2–8 cm, base obtuse or cuneate, sometimes oblique, apex acute or short acuminate; veins arcuate ascending, sparsely pubescent with minute hairs, glabrescent. Inflorescences solitary or paired flowers. Pedicel 1–2.5 cm. Calyx tubular, short campanulate, 1/4 to 1/3 as long as corolla, ca. 4 × 6 mm, 5-dentate; lobes erect, equal, deltate, densely villous abaxially, ciliate. Corolla white, campanulate, 1–1.7 × 1–1.7 cm; lobes deltate, 5–7 mm, pubescent abaxially. Stamens ca. 6 mm; filaments ca. 4 mm, glabrous; anthers 1.8–2 mm. Ovary conical. Fruiting pedicel 3–5 cm, glabrous. Fruiting calyx ovoid-globose, slightly exceeding berry, closely and entirely enveloping it, sometimes slightly open at apex; lobes very short, persistent. Berry globose, ca. 1.5 × 1.7 cm. Seeds ca. 3 × 2.5 mm. Fl. May-Jun, fr. Jul-Aug.


**Jiangnan San Xue Dan** jiang nan san xue dan

- **Plants** 30–60 cm tall. Roots numerous, clustered, fleshy and fibrous often together. Stems erect. Petiole 2–4 cm; leaf blade elliptic, ovate, or lanceolate, 7–19 × 3–9 cm, sparsely pubescent, base oblique, apex short acuminate or acute. Pedicel 1–2.2 cm, glabrescent. Calyx short campanulate, 1/3 as long as corolla, 5–11 × 6–10 mm, divided to halfway or slightly 5-parted; lobes erect, narrowly deltate or lanceolate, acuminate at apex, ± less unequal, pubescent and villous abaxially, ciliate. Corolla white, pale yellow, or yellowish green, broadly campanulate, 1.2–2 × 1.5–2.8 cm; lobes short deltate, pubescent abaxially, ciliate. Nectary absent. Stamens half as long as corolla; filaments 4–5 mm, sparsely pubescent; anthers 2–3 mm. Fruiting pedicel 2–3.5 cm, thickened upwards. Fruiting calyx subglobose, closely enveloping and longer than

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*Physaliastrum japonicum* (Franchet & Savatier) Honda, which is a different species.

*Physaliastrum japonicum* (Hemsley) Averett.


*酸浆属* suan jiang shu

Herbs annual or perennial, glabrous or pubescent with simple hairs. Leaves mostly equal, sometimes paired, simple, petiolate; leaf blade membranous, entire, denticulate or sinuate. Inflorescences solitary flowers in leaf axils or branch forks. Flowers actinomorphic, 5-merous. Calyx campanulate. Corolla yellow or white, often with a contrasting eye, rotate or rotate-campanulate, subentire or lobed. Stamens shorter than corolla, inserted at base of corolla tube; filaments sometimes expanded at base; anthers dehiscing longitudinally. Ovary 2-locular, ovules numerous. Stigma minutely 2-lobed. Fruiting calyx becoming enlarged, inflated, entirely enveloping fruit, membranous or leathery, with 5 or 10 longitudinal ribs, base often invaginated. Fruit a juicy globose berry. Seeds numerous, compressed, discoid or reniform, minutely pitted; embryo coiled, subperipheral.

About 75 species: mostly in the Americas, a few in Asia and Europe; six species in China.

The genus embraces many species from the New World that have green fruiting calyces, and several have been introduced to China. Many Chinese collections with green fruiting calycites could not be determined, and their identity is to be sought among the more than 70 species distributed in various parts of the New World, a task for future workers.

1a. Fruiting calyx orange to red, subleathery; rhizomatous perennials; corolla white, mostly with greenish or yellowish spots in throat, margins 5-lobed; anthers yellow .......................................................... 1. *P. alkekengi*

1b. Fruiting calyx green or stramineous, papery or membranous; annuals or short-lived perennials; corolla pale yellow or yellow, sometimes with purple or brown blotches in throat, margin entire; anthers purplish, bluish, or yellow.

2a. Plants perennial, softly villous to puberulent throughout; leaf base cordate; anthers 3 mm or more ........... 5. *P. peruviana*

2b. Plants annual, glabrescent to variously pubescent with scattered hairs; leaf base obtuse to truncate or cordate; anthers 3 mm or less.

3a. Fruiting pedicel 3–8 mm.

4a. Corolla less than 7 mm; anthers less than 2 mm; fruiting calyx 2 cm or less, ribs bumpy, sometimes with stout white hairs; berry not filling calyx; stems with long many-celled hairs ............................................ 2. *P. minima*

4b. Corolla more than 10 mm; anthers more than 2 mm; fruiting calyx 2 cm or more, ribs smooth, glabrous; berry filling calyx; stems with mostly short hairs, glabrescent ........................................4. *P. philadelphica*

3b. Fruiting pedicel 10–25 mm.

5a. Fruiting calyx strongly 5-angled, glabrous; calyx lobes immediately after anthesis linear-lanceolate .................................................... 5. *P. cordata*

5b. Fruiting calyx weakly 10-angled, often minutely puberulent; calyx lobes immediately after anthesis deltate........ 3. *P. angulata*


*酸浆 suan jiang*

Herbs perennial. Stems 40–80 cm tall, slightly woody at base, little branched, nodes sometimes inflated, mostly pubescent. Petiole 1–3 cm; leaf blade narrowly to broad, ovate, 5–15 × 2–8 cm, glabrescent or pubescent, base oblique, cuneate, margin entire or coarsely dentate, sometimes with salient, unequal, delinate lobes, apex acuminate. Pedicel 0.6–1.6 cm, glabrescent, puberulent or densely and persistently villous. Calyx broadly campanulate, ca. 6 mm, densely pubescent. Corolla white, mostly with a greenish or yellowish eye, rotate or campanulate, 1.5–2 cm in diam., lobed. Stamens yellow. Fruiting pedicel 2–3 cm; fruiting calyx orange or red, ovate, rounded, 10-ribbed, 2.5–4 × 2–3.5 cm, subleathery, invaginated at base, glabrescent or persistent villous. Berry shiny, orange-red, globose, 1–1.5 cm in diam. Seeds pale yellow, reniform, ca. 2 mm in diam.

Asia, Europe; cultivated and naturalized elsewhere.

The fruits of this species are edible and are used medicinally as a febrifuge.

1a. Leaves pubescent; tube of flowering calyx densely pubescent; fruiting calyx puberulent, mostly more than 2 cm across; corolla with indistinct, fused basal marking ........................................................... 1a. var. *alkekengi*

1b. Leaves glabrescent, sometimes ciliate; tube of flowering calyx sparsely pubescent; fruiting calyx glabrescent, mostly more than 3 cm across; corolla with distinct basal spots ......................... 1b. var. *franchetii*

1a. **Physalis alkekengi** var. *alkekengi*

*酸浆 suan jiang*

*Physalis alkekengi* var. *anthoxantha* H. Léveillé; *P. alkekengi* var. *orientalis* Pampanini; *P. ciliata* Siebold & Zuccarini; *P. kansuensis* Pojarkova.


Slopes, open lands; 1200–2500 m. Gansu, Guizhou, Hebei, Henan, Hubei, Shaanxi, Sichuan, Yunnan [Russia, Tajikistan; SW Asia, Europe].


头金灯 gua jin deng

*Physalis franchetii* Masters, Gard. Chron. ser. 3, 16: 434. 1894; *P. alkekengi* var. *glabripes* (Pojarkova) Grubov; *P. franchetii* var. *bunyardii* Makino; *P. glabripes* Pojarkova; *P. praetermissa* Pojarkova; *P. szechuanica* Pojarkova.


Disturbed sites, forests, also commonly cultivated; 800–2500 m. Throughout China except Xizang [Korea].


小白浆 xiao suan jiang
**Physalis angulata** Linnaeus var. villosa Bonati; *P. lagascae* Roemer & Schultes; *P. purpurascens* R. Brown.

Herbs annual. Roots fibrous. Stems prostrate or erect, pubescent with long many-celled hairs. Petiole 1–1.5 cm; leaf blade ovate or ovate-lanceolate, 2–3 × 1–1.5 cm, pubescent along veins, base cuneate, often oblique, margin entire, sinuate, or with a few coarse teeth, apex acuminate. Pedicel ca. 5 mm, pubescent. Calyx campanulate, 2.5–3 mm, pubescent; lobes deltate, short acuminate, densely ciliate. Corolla yellow, ca. 5 mm. Anthers light yellow, 1–1.5 mm. Fruiting pedicel less than 1 cm, pendulous. Fruiting calyx green, subglobose or ovoid, 1–1.5(–2) cm. Berry globose, ca. 6 mm in diam. Fl. summer, fr. autumn.

Slopes; 1000–1800 m. Guangdong, Guangxi, Jiangxi, Sichuan, Yunnan [worldwide].


4. **Physalis esquirolii** H. Léveillé & Vaniot.

Herbs annual, 30–50 cm tall, sparsely pubescent or glabrescent. Stems much branched. Petiole 1–5 cm; leaf blade ovate to elliptic, 3–6 × 2–4 cm, glabrescent, base cuneate or broadly cuneate, margin entire or dentate, apex acuminate or acute. Pedicel 5–12 mm. Calyx divided about halfway, 4–5 mm; lobes lanceolate, ciliate. Corolla pale yellow or white, spotted in throat, 4–6 × 6–8 mm. Fruiting calyx ovoid, 1.5–2.5 cm in diam. Berry ca. 1.2 cm in diam. Seeds discoid, ca. 2 mm. Fl. May-Jul, fr. Jul-Dec.

Disturbed sites, forests, villages, roadsides; 500–1500 m. Anhui, Fujian, Guangdong, Guangxi, Hainan, Hubei, Hunan, Jiangsu, Jiangxi, Taiwan, Zhejiang [worldwide].

4. **Physalis philadelphica** Lamarck, Encycl. 2: 101. 1786.

5. **Physalis esquirolii** H. Léveillé. Confident assignment of these synonyms awaits further study.

**Physalis esquirolii** H. Léveillé.

Herbs annual. Stems branched, glabrescent or sparingly pubescent. Petiole 3–8 cm, densely pubescent; leaf blade broadly ovate to cordate, 6–15 × 4–10 cm, densely pubescent, base cordate, margin entire or with a few indistinct teeth, apex short acuminate. Pedicel ca. 1.5 cm. Calyx broadly campanulate, 7–9 cm. Corolla yellow, spotted in throat, 1.2–1.5 × 1.2–2 cm. Filaments and anthers blue-purple; anthers 3–4 mm long. Fruiting calyx green, ovoid, with 5–10 weak angles, 2.5–4 cm, pubescent. Berry yellow, 1–1.5 cm in diam. Seeds yellow, ca. 2 mm in diam. Fl. summer, fr. autumn.

Near roads, river valleys, cultivated and naturalized; 1200–2100 m. Fujian, Guangdong, Jiangsu, Yunnan [native to South America, widely naturalized elsewhere].

The fruits are eaten fresh and are used for jam making.


**Physalis cordata** Miller, Gard. Dict. ed. 8, no. 14. 1768.

**Physalis esquirolii** H. Léveillé.

Herbs annual. To 1 m tall, sparsely pubescent. Petiole 3–6 cm; leaf blade ovate, sometimes broadly so, 3–6 × 2.5–7 cm, membranous, sparsely pubescent along veins, base oblique, margin subentire or sparsely dentate, apex acuminate. Pedicel 4–10 mm. Calyx 4–7 mm; lobes linear-lanceolate, 2.5–3.5 mm, pubescent. Corolla pale yellow, spotted in throat, 6–8 × 4–8 mm in diam., apex pubescent abaxially, subtruncated. Anthers bluish green, 1.8–3 mm. Fruiting pedicel 1–2.5 cm. Fruiting calyx green, strongly 5-angled, turbinate, invaginated at base, glabrescent. Berry 1–1.4 cm in diam. Seeds straw colored, elliptic-discoid, 1.5–2 × 1–1.2 mm. Fl. and fr. Feb-Sep.

Disturbed sites. Hainan [North and South America].


**Physalis cavairei** H. Léveillé.


About six species: N Africa, W Asia, and S Europe; one species adventive in China.

睡茄  shui qie


Herbs perennial, 30–150 cm tall, pubescent with dendritic hairs. Stems woody proximally, erect or reclining, branched, tomentose. Petiole 1–2 cm; leaf blade ovate, obovate, or oblong, 2.5–12 × 2–7 cm, glabrescent adaxially except along midvein, pubescent abaxially, base cuneate, apex acute. Inflorescences subsessile clusters of 4–6 flowers; peduncle obsolete. Pedicel ca. 5 mm. Calyx campanulate, 3–5 mm, tomentose; lobes deltate, 1–2 mm. Corolla yellowish green, narrowly campanulate, 5–8 mm, tomentose at throat; lobes ovate, spreading or recurving, 2–2.5 mm. Filaments ca. 1.8 mm; anthers yellow, ovoid, ca. 1 mm, minutely apiculate. Style exserted. Fruiting calyx becoming brown and translucent, globose or ovoid, truncate at base, 1–2.2 cm; lobes short, somewhat urceolate. Berry shiny, scarlet, globose, 5–8 mm. Seeds drying pale brown, reniform-discoid, 2–2.5 × 2 mm. Fl. and fr. Oct.

Gansu, Yunnan [Afghanistan, India, Pakistan; SW Asia, Europe].

*Withania kansuensis*, which is known only from the type that cannot be located, was distinguished by a series of characters that are also found in *W. somnifera*, and only the presence of simple hairs seems distinctive.


辣椒属  la jiao shu

Shrubs or annual or perennial herbs; pubescent of simple hairs. Stems branched. Leaves solitary or paired, petiolate; leaf blade simple, entire or sinuate. Inflorescences solitary or few-flowered clusters at branch forks or leaf axils; peduncle absent. Flowers nodding or erect, actinomorphic. Pedicel erect or nodding. Calyx broadly campanulate to cup-shaped, denticulate, sometimes slightly enlarged. Corolla white, blue, or violet, campanulate or rotate, divided halfway or more. Stamens inserted near distal end of corolla tube; filaments slender; anthers yellow or purplish, ovoid, dehiscing longitudinally. Ovary 2- (or 3)-locular; ovules numerous. Style slender; stigma small, capitate. Fruit a moist berry, sometimes large, erect, nodding, or reflexed. Seeds yellowish, discoid; embryo coiled, subperipheral.

About 25 species: all in South America, two or three cultivated and naturalized worldwide; one species in China.

1. **Capsicum annuum** Linnaeus, Sp. Pl. 1: 188. 1753.

辣椒  la jiao

*Capsicum annuum* var. *conoide* (Miller) Irish; *C. annuum var. fasciculatum* (Sturtevant) Irish; *C. annuum var. grossum* (Linnaeus) Sendtner; *C. conoide* Miller; *C. fasciculatum* Sturtevant; *C. frutescens* Linnaeus; *C. frutescens var. fasciculatum* L. Bailey; *C. frutescens var. longum* L. Bailey; *C. frutescens var. grossum* L. Bailey; *C. grossum* Linnaeus; *C. longum* de Candolle.

Shrubs or annual or perennial herbs, 20–80 cm tall. Stems glabrescent. Leaves solitary or paired; petiole 4–7 cm; leaf blade oblong-ovate, ovate, or ovate-lanceolate, 4–13 × 1.5–4 cm, glabrescent, base narrowed, margin entire, apex short acuminate or acute. Inflorescences solitary flowers or few-flowered clusters. Pedicel bent at apex, 1–2 cm. Calyx cup-shaped, undulate, 2–3 × 3 mm. Corolla white, ca. 1 cm.

Anthers purplish, 1.8–2 mm. Berry mostly red (orange, yellow, or purple in cultivation), variously shaped, up to 15 cm. Seeds pale yellow, discoid or reniform, 3–5 mm. Fl. May-Aug, fr. Jul-Nov.

Widely cultivated in China [native to Mexico and South America, widely cultivated and naturalized throughout the world].

The species includes forms with sweet or pungent fruits. The fruits are an important vegetable and flavoring, and the seed oil is edible. Fruits are used medicinally for inducing sweat. Plants are sometimes cultivated as ornamentals. During its long cultivation, many cultivars have been selected with very different fruit appearance.

The practice of referring woody plants of this species to *Capsicum frutescens* Linnaeus has little merit since herbaceous plants often become woody with age, and other characters supposed to distinguish the two species occur in various populations in both herbaceous and woody plants.


龙珠属  long zhu shu


Herbs perennial; pubescence of minute simple hairs, glabrescent. Leaves solitary or subequal paired on distal branches, simple, petiolate; leaf blade subtire. Inflorescences solitary flowers or few- to several-flowered clusters in branch forks, sometimes appearing axillary; peduncle absent. Flowers actinomorphic, 5-merous. Pedicel slender. Calyx short cup-shaped, apex subtruncate. Corolla yellow, broadly campanulate, lobed. Stamens inserted in distal end of corolla tube; filaments adnate to base of limb, subulate, base broadened with ascending projections; anthers ovate, dorsifixed, cordate, dehiscing longitudinally. Disc inconspicuous. Ovary 2-locular; ovules numerous. Stigma capitate. Fruiting pedicel pendulous. Fruit a red, juicy globose berry. Seeds discoid; embryo coiled and subperipheral.

One species: China, Indonesia, Japan, Korea, Philippines, Thailand.


Herbs perennial, glabrescent, to 1.5 m tall. Stems terete at base, drying ridged, branching dichotomously. Petiole 1–3 cm; leaf blade ovate, elliptic, or ovate-lanceolate, 5–18 × 3–10 cm, papery, base obtuse, margin subentire, apex acuminate or obtuse; veins arcuate. Inflorescences solitary or up to 12-flowered clusters. Pedicel 1–2 cm, nodding, slightly thicker distally. Calyx cup-shaped, 2–2.5 × 3 mm, truncate. Corolla bright yellow, short campanulate, 5–8 × 6–8 mm; lobes ovate-deltate, recurved, 2–3.5 mm, minutely ciliolate. Filaments ca. 0.5 mm; anthers ca. 1.8 mm. Style 2.5–3 mm. Fruiting calyx not enlarged. Berry shiny, scarlet, 0.8–1.2 cm. Seeds pale yellow, discoid, 1–1.5 mm across. Fl. Aug-Oct, fr. Sep-Nov.

Mesophytic sites in forests or open places; various elevations. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [Indonesia, Japan including Ryukyu Islands, Korea, Philippines, Thailand].


Herbs, shrubs, climbers, or small trees, sometimes prickly; hairs simple, branched, or stellate, sometimes glandular. Leaves solitary or paired, simple or pinnately compound, mostly petiolate; leaf blade entire, dentate, lobed, or parted. Inflorescences axillary, extra-axillary, or leaf opposed, mostly racemose, paniculate, umbellate, fasciculate, or solitary flowers, without bracts; peduncle branched or not, sometimes obsolete. Flowers bisexual or andromonoecious, mostly actinomorphic, often 5-merous. Calyx mostly lobed partway and splitting further at sinuses. Corolla mostly rotate or stellate. Stamens inserted high in corolla tube; anthers often connate or conuate around style, dehiscing by apical pores, often later splitting longitudinally. Ovary 2–5-locular, with enlarged placenta; ovules axile, numerous. Stigma small. Fruiting calyx persistent, sometimes enlarged and enclosing berry. Berries mostly juicy. Seeds discoid or lenticular; embryo strongly curved.

About 1200 species: most in tropical and subtropical regions, especially in the Americas; 41 species in China, about half introduced from elsewhere.

1a. Plants with stellate hairs; prickles often present.

2a. Plants unarmed; leaves entire; anthers stout, not tapering; inflorescences many-flowered, flat or rounded

1a. Plants with stellate hairs; prickles often present.

2a. Plants unarmed; leaves entire; anthers stout, not tapering; inflorescences many-flowered, flat or rounded

1.5 cm tall; fruit mostly less than 3 cm.

2b. Plants mostly armed; leaves mostly dentate or lobed; anthers tapering distally; inflorescences unbranched or 1-branched, rarely more, angling from twigs, held below foliage or along stems.

3a. Calyx enlarged, closely enveloping most of berry.

4a. Corolla yellow; anthers more than 1 cm, unequal; berry completely enveloped by calyx at maturity; fruiting calyx with dense prickles 1–2 cm

5a. Leaves usually pinnate-parted, lobes pinnately lobed or dentate; stems pubescent with simple, many-celled glandular hairs and few stellate hairs

6a. Inflorescences less than 5 cm, peduncle less than 5 mm; corolla white

7a. Fruit densely stellate hirsute with persistent tomentum; plants tomentose; calyx lobes nearly leaflike, more

8a. Corolla more than 5 cm wide, deep purple, fading white, with contrasting abaxial pleats; sturdy trees to 12

9a. Inflorescences mostly 1–3-branched; plants mostly more than 1 m.

10a. Leaves 3–5-lobed or parted, with loose and softly lanate pubescence on both surfaces, drying of

11a. Corolla white; pedicel with simple glandular hairs mixed with stellate ones; fruit yellow, more

12a. Leaves subentire or 6- or 7-sinuate lobed, ovate-elliptic; corolla more than 8 mm

2. **S. erianthum**

3b. Calyx hardly or not enlarged, not enveloping berry.

4b. Corolla white, blue, or purplish; anthers less than 1 cm, equal; berry partly or completely exposed from enlarged calyx at maturity; fruiting calyx copiously or sparingly armed with prickles less than 1 cm.

5b. Leaves entire or irregularly dentate; stems with only stellate hairs.

6b. Inflorescences more than 5 cm, peduncle more than 5 mm; corolla blue or purple

7b. Fruit glabrous; plants variously pubescent; calyx lobes not leaflike, mostly less than 7 mm.

8b. Corolla less than 5 cm wide, white or purple, not conspicuously fading, lacking contrasting pleats; shrubs, or if small trees then trunk slender; fruit mostly less than 3 cm.

9b. Inflorescences mostly 1–3-branched; plants mostly more than 1 m.

10b. Leaves subentire or variously lobed, minutely scabrous with mostly sessile stellate pubescence adaxially, drying of different colors; leaves and stems lacking bristly, long-stalked hairs.

11b. Corolla blue, violet, or purple; pedicel with stellate hairs only; fruit red, less than 1 cm in diam.

2. **S. chrysotrichum**

4. **S. angustifolium**

5. **S. sisybrifolium**

6. **S. barbisetum**

7. **S. lasiocarpum**

8. **S. wrightii**

9. **S. macaoense**
12b. Leaves entire, lanceolate or narrowly oblong; corolla less than 8 mm .......................... 21. S. luzoniense

9b. Inflorescences unbranched; plants mostly less than 1 m.

13a. Fruit more than 1.4 cm across; flowers mostly andromonoecious.
14a. Fruit red, often longitudinally furrowed; corolla white or slightly purplish .......... 29. S. aethiopicum
14b. Fruit mostly yellow or black, not red, not furrowed; corolla blue or violet.
15a. Fruit mostly much more than 4 cm across, variously shaped, seldom globose, green, white, black, pink, or brown, only yellow at extreme maturity ...................................................... 40. S. melongena
15b. Fruit mostly less than 4 cm across, globose, green or yellow .............................. 39. S. undatum

13b. Fruit less than 1.4 cm across; flowers mostly bisexual.

16a. Leaves soon glabrescent, deeply pinnately lobed; stems with copious, compressed, bright yellow, nearly straight prickles often more than 7 mm; anthers more than 7 mm; fruit yellow .................................................................................................................................................... 41. S. virginianum

16b. Leaves with persistent indumentum, entire, dentate, or shallowly lobed; stems unarmed or with recurved spines less than 5 mm; anthers mostly less than 7 mm; fruit red or orange.

17a. Leaves entire; plants unarmed or sparingly armed; inflorescences elongated ........ 23. S. nienkui
17b. At least some leaves lobed or sinuate; plants armed, sometimes copiously so; inflorescences condensed.

18a. Leaves mostly less than 4 cm, sinuate; petiole less than 1.5 cm; inflorescences mostly terminal on leafy shoots ........................................................................................................ 24. S. procumbens
18b. Leaves mostly more than 5 cm, often saliency lobed; petiole mostly more than 1.5 cm; inflorescences mostly extra-axillary or axillary.

19a. Flowers usually purple; plants evidently armed; fruiting pedicels usually erect, more than 1 cm ............................................................ 27. S. violaceum
19b. Flowers usually white; plants sparingly armed, occasionally with prickles less than 1 mm; fruiting pedicels strongly recurved, less than 1 cm ............... 28. S. deflexicarpum

1b. Plants glabrous or with predominantly simple or rarely denticulate hairs, stellate hairs usually absent, if present on leaves, then mixed with simple hairs; prickles mostly absent.

20a. Anthers lanceolate, tapering to a slender subulate apex; plants with coarse, straight simple hairs, armed with needlelike prickles.

21a. Fruit orange-red; seeds yellowish, compressed discoid with a conspicuous orbicular wing, 4–6 mm in diam. (including wings) ...................................................................................................................... 32. S. capsicoides
21b. Fruit light yellow; seeds brown, lenticular, unwinged, less than 4 mm in diam.

22a. Plants villous with mixed stellate and simple, partly glandular hairs; pericarp more than 1 cm thick.
23a. Stems pilose with some hairs 2 mm; leaf lobes sharp pointed; ovary glabrous; corolla purple ............................................................................................................................ 33. S. mammosum
23b. Stems densely tomentose with hairs less than 1 mm long; leaf lobes blunt tipped; ovary and young fruit pubescent; corolla white or green ..................................................................................... 31. S. viarum

22b. Plants minutely tomentose with simple, many-celled, mostly glandular hairs, only leaves sparsely stellate abaxially; pericarp less than 1 cm thick ................................................................. 30. S. aculeatissimum

20b. Anthers oblong or ovoid, not tapering; plants glabrescent or with simple or branched hairs, unarmed.

24a. Leaves pinnately compound, at least in part.

25a. Leaves interruptedly odd-pinnate compound, usually with interstitial leaflets, viscid pubescent; pedicel articulated well above middle; foliage strongly odorous when crushed; calyx divided nearly halfway; underground tubers present ................................................................. 19. S. tuberosum
25b. Leaves with 1 or 2 pairs of basal leaflets, mostly not glandular, sometimes glabrous; pedicel base articulated or not at all; foliage hardly odorous; calyx lobes short or absent; underground tubers absent.

26a. Plants glabrous; leaves usually 5–9-parted; calyx subtruncate; anthers free .............. 17. S. seaforthianum
26b. Plants pubescent; leaves entire or 3–5-parted; calyx with short distinct lobes; anthers connate ................................................................................................................................. 11. S. dulcamara

24b. Leaves entire or variously parted, but not compound.

27a. Shrubs; leaves large, often lobed to near midvein, lobes narrow; corolla lobes notched at apex; fruit nodding, orange-yellow, ellipsoid ........................................................................................ 1. S. laciniatum
27b. Herbs or vines, if shrubs then leaves unlobed or lobes broad; corolla lobes entire; fruit various.

28a. Inflorescences solitary or paired flowers, or unbranched, often umbellate racemes (branched in S. merriillianum); mostly shrubs or herbs.

29a. Shrubs; leaves borne on woody stems, all entire, mostly unequal paired; style and filaments glabrous.

30a. Peduncle and rachis short or obsolete, 1(–3)-flowered; pubescence of branched hairs; fruit bright orange-red .............................................................................................................. 10. S. pseudocapsicum
30b. Peduncle evident, rachis elongate, several to many flowered; pubescence of simple hairs; fruit pale, dull orange or yellow.

31a. Berry often less than 1 cm in diam.; corolla less than 1 cm; anthers less than 2.5 mm; pedicel less than 1 cm; leaves glabrous, minor ones rounded at apex .......................... 3. S. diphyllum
31b. Berry more than 1.1 cm in diam.; corolla more than 1 cm; anthers more than 2.5 mm;
Solanum laciniatum

Shrubs to 3 m tall; pubescence of simple hairs, soon glabrescent. Stems glabrous except for minute pubescence on young tips and buds. Leaves unequal paired, lobed and entire often on same plant; petiole of lobed leaf ca. 1–1.5 cm, that of entire leaf 0.5–1 cm; blade of entire leaf broadly ovate, deeply pinnately 5–9-parted, 12–17 × 6–13 cm; blade of entire leaf lanceolate, 10–20 × 1.5–3 cm. Inflorescences terminal, axillary, or extra-axillary, scorpoid-racemose, ca. 8 cm; peduncle short or obsolete. Pedicel 1.5–3 cm. Calyx 5–7 mm; lobes deltate, 2–3 mm, leathery, apex mucronulate. Corolla blue-purple, rotate, 2–2.5 cm; lobes semiorbund, notched. Filaments subulate; anthers oblong, 3–4 mm. Style ca. 8 mm.

Cultivated. Hebei, Hubei, Jiangsu, Sichuan, Yunnan [native of Oceania]. This species is grown as a major source of the medicinal alkaloids solasodine, solasonine, and solamargin that are contained in the leaves and fruits.

Solanum laciniatum is similar to S. aviculare Forster under which name it was introduced from Australia and known in FRPS and other works. It differs in having yellow-orange rather than scarlet fruit, notched corolla lobes, and in details of the seeds.

Solanum erianthum

Cultivated. Hebei, Hubei, Jiangsu, Sichuan, Yunnan [native of Oceania].

Stems and inflorescences villos with erect, many-celled hairs more than 2 mm

Leaves undulate-dentate or lobed; emergent growth with long simple hairs

Leaves all entire or with 1(–3) pairs of basal lobes.

Leaves all entire; emergent growth often glabrous.

Leaves puberulent; anthers less than 2 mm; fruit mostly less than 8 mm in diam.; seeds less than 2 mm in diam.

Leaves glabrescent; anthers more than 2 mm; fruit mostly more than 8 mm in diam.; seeds more than 2 mm in diam.


Shrubs or small trees 1.5–10 m tall, unarmed, stellate tomentose overall. Petiole stout, 1.5–5.5 cm; leaf blade ovate-oblong or elliptic, 10–29 × 4–12 cm, base cuneate or obtuse, entire or sinuate, apex short acuminate. Inflorescences erect, appearing terminal, flat-topped or rounded panicles; peduncle 3–10 cm. Pedicel 3–5 mm. Calyx campanulate, ca. 1
Variety *tetrasepalum* was established mainly on the basis of having 4-merous flowers. These occasionally occur in many species of *Solanum*, including *S. spirale*.


Herbs annual or short-lived perennial, glabrescent or puberulent with simple hairs. Stems green or purple, mostly erect, 25–100 cm tall. Petiole 1–2 cm; leaf blade ovate, 4–8 × 2–4 cm, membranous, glabrescent or sparsely pubescent, base truncate to cuneate, margin entire or sparingly dentate, apex acute. Inflorescences extra-axillary, subumbellate; peduncle 1–2.5 cm. Pedicel 5–10 mm. Calyx cup-shaped, 1.5–2 mm in diam., lobed nearly halfway; lobes ovate, pubescent abaxially, ciliate. Corolla white, rarely bluish or purplish, sometimes with a yellow eye, 3–5 mm, lobed halfway or more; lobes ovate-oblong, 3–4 mm, pubescent abaxially, ciliate. Filaments short, ca. 0.5 mm, puberulent; anthers 1–1.5 mm. Fruiting pedicel erect or nodding; fruiting calyx strongly reflexed. Berry shiny black, occasionally ripening green, globose, 5–8 mm in diam. Seeds discoid, 1.5–2 mm in diam. Fl. Jun-Oct, Fr. Jul-Jan.

Waste places, roadsides; fields; 100–2000 m. Fujian, Guangdong, Guangxi, Hainan, Jiangxi, Sichuan, Taiwan, Yunnan [widespread in all tropical and temperate regions].

The leaves are used as a vegetable, yielding a heat-clearing effect. Whole plant can be used for treating inflammation, dissipating blood stasis, and promoting the subsidence of swelling, also clearing away heat and detoxifying.

This species was reported in FRPS as *Solanum nigrum* and *S. photoinocarpum*. However, *S. nigrum* is actually a different species, treated below. A variant of *S. americanum* was reported for China by Wessely (Feddes Repert. 63: 293. 1960) as *S. nigrum* var. *violaceum* Chen and in FRPS as *S. photoinocarpum* var. *violaceum* (Chen) C. Y. Wu & S. C. Huang, but we were unable to locate the original description of this variety or material of it.


Herbs or subshrubs 0.5–1.5 m tall. Stems woody, rooting at nodes, with herbaceous shoots; twigs slender, angled, sparingly puberulent with short, ascending simple hairs. Petiole slender, 0.5–2 cm; leaf blade ovate, 2–8 × 1.5–4.5 cm, puberulent with scattered, arched simple hairs, glabrescent,
base cuneate, decurrent, margin subentire, shallowly sinuate-dentate, apex acute or obtuse. Inflorescences cymose panicles 2–3 cm across, sometimes reduced to simple racemes; peduncle 2–3 cm, mostly several times dichotomously branched, slender. Pedicel 7–9(–12) mm, slender, pubescent, sometimes articulate just above base. Calyx cup-shaped, sparingly pubescent; lobes ovate-rounded, slightly unequal, 0.4–0.6 mm, ciliate. Corolla white, 4–6 × 5 mm, lobed halfway; lobes 2–3 mm, acute, ciliate, pubescent abaxially. Filaments equal, 0.5 mm, pubescent; anthers oblong, 1.5–1.7 mm. Style ca. 4 mm, tomentose at base. Fruiting pedicel 0.8–1.2 cm; fruiting calyx not enlarged. Berry black or black-blue, globose, 4–5 mm across. Seeds numerous, discoid or ovate, ca. 1.5 mm across. Fl. and fr. throughout the year.

- Slopes, near roadsides; low elevations. Anhui (Maanshan Shi), Guangdong, Hainan, Taiwan.


龙葵  long kui

*Solanum nigrum* var. *atriplicifolium* G. Meyer.

Herbs annual, erect, 25–100 cm, pubescent with simple hairs, unarmed. Stems often angular, sparsely pubescent. Petiole 2–5 cm; leaf blade ovate, 4–10 × 3–7 cm, pubescent or glabrescent, base cuneate, decurrent, entire or coarsely dentate, apex obtuse. Inflorescences extra-axillary umbels; peduncle 2–4 cm. Pedicel 0.8–1.2 cm. Calyx cup-shaped, 2–3 × 2–3 mm; lobes subdeltate, 0.5–1 × 1–1.5 mm, pubescent abaxially, ciliate. Corolla white, 8–10 mm; lobes ovate-oblong, 4.5 × 3–3.5 mm, pubescent abaxially, ciliate, spreading. Filaments 1–1.5 mm; anthers oblong, 2.5–3.5 mm. Style 5–6 mm. Fruiting pedicel strongly deflexed; fruiting calyx applied to berry. Berry dull black, globose, 8–10 mm in diam. Seeds discoid, ca. 2 mm in diam. Fr. May-Aug, fr. Jul-Nov.

600–3000 m. Fujian, Guangxi, Guizhou, Hunan, Jiangsu, Sichuan, Taiwan, Yunnan [India; Japan; SW Asia, Europe].

The name *Solanum nigrum* has been commonly used to include many distinct but similar species, and more than one taxon may be represented in the material treated here under this name.


木龙葵  mu long kui

Herbs annual or short-lived perennial, glabrescent or sparingly pubescent. Stems erect, often angular; branchlets pubescent, glabrescent. Petiole 4–7 mm; leaf blade broadly ovate, rhomboid, or rounded, often broad, 2–10(–12) × 2–6 (–7) cm, glabrescent or pubescent, base cuneate, decurrent, margin entire, sinuate, or sparingly dentate, apex acute. Inflorescences extra-axillary, subumbellate; peduncle unbranched, 1–2.5 cm. Pedicel 5–10 mm, pubescent. Calyx cup-shaped, ca. 2 mm in diam., puberulent axially; lobes deltate-ovate, ca. 0.5 mm, ciliate. Corolla white, ca. 1 cm in diam.; lobes ovate, 2.5–5 mm, pubescent abaxially. Filaments short; anthers oblong, 2–4 mm. Style ca. 3 mm, pilose. Fruiting pedicel deflexed; fruiting calyx reflexed. Berry purplish black, somewhat shiny, globose, 5–10 mm in diam. Seeds discoid, 0.8–1 mm in diam. Fl. and fr. throughout the year.

Near roads, humid places in ravines and valleys; 200–2700 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan, cultivated in Zhejiang (Hangzhou Shi) [Africa].

This species was treated in FRPS as *Solanum nigrum*.


红果龙葵  hong guo long kui

*Solanum alatum* Moench; *S. humile* Bernhardi ex Willdenow; *S. miniatum* Bernhardi ex Willdenow; *S. nigrum* var. *humile* (Bernhardi ex Willdenow) C. Y. Wu & S. C. Huang.

Herbs erect, 40–60 cm tall, much branched; pubescence of simple, sometimes glandular hairs. Stems pubescent, often angular. Petiole 5–10 mm, winged; leaf blade ovate to elliptic, 3–7 × 2–4 cm, sparsely pubescent, base cuneate, decurrent, margin entire, sinuate, or coarsely dentate, apex acute. Inflorescences extra-axillary, umbellate; peduncle 1 cm, unbranched. Pedicel 4–6 mm. Calyx 2 × 1–1.5 mm, puberulent; lobes obtuse, less than 1 mm, ciliate, sinuses rounded. Corolla white or purplish, sometimes drying yellowish, 5–7 × 8–10 mm; lobes ovate-lanceolate, ca. 3 mm, ciliate, strongly spreading and reflexed. Filaments 1.5–1.8 mm, pubescent; anthers ca. 2 mm. Style 3–4.5 mm, pilose at base. Fruiting pedicel 1–1.5 cm, pubescent. Berry red, orange, or yellow, often bright, globose, 6–8 mm in diam. Seeds discoid, ca. 1 mm. Fr. Jul-Sep, fr. Sep-Nov.

Slopes, valleys, near roads, shady places; 100–1300 m. Gansu, Qinghai, Shanxi, Xinjiang; occasionally cultivated in Hebei [Afghanistan, India, Nepal; SW Asia, Europe].


珊瑚樱桃  shan hu yin

Shrubs erect, branched, unarmed; pubescence of simple and branched hairs. Petiole 2–5 cm; leaf blade narrowly oblong to lanceolate, 1–6 × 0.5–1.5 cm, pubescent or glabrous, base cuneate, decurrent, margin entire or sinuate, apex acute or obtuse. Inflorescences leaf opposed or extra-axillary, solitary or rarely paired flowers or short racemes; peduncle short or obsolete. Pedicel 3–4 mm. Calyx green, ca. 4 mm in diam., prominently lobed; lobes ca. 1.5 mm. Corolla white or mauve, 0.8–1.5 cm in diam., lobed about half way. Filaments less than 1 mm, glabrous; anthers ca. 2 mm. Style ca. 2 mm. Fruiting pedicel ca. 1 cm, expanded at apex. Berry orange-red, fleshy, 1.2–1.5(–2) cm in diam. Seeds discoid, 2–3 mm in diam.

Native of South America, cultivated and naturalized elsewhere.

1a. Plants glabrescent; anthers more than 2 mm .......................................................... 10a. var. *pseudocapsicum*

1b. Plants conspicuously puberulent with dendritic hairs; anthers ca. 2 mm .......................... 10b. var. *dilorum*

10a. Solanum pseudocapsicum var. *pseudocapsicum*

珊瑚樱桃  shan hu yin

Stems, leaves, and inflorescences glabrescent. Fl. early summer, fr. late autumn.

Cultivated for ornament. Anhui, Guangdong, Guangxi, Hubei [native to South America; widely cultivated].


珊瑚豆  shan hu dou

*Solanum capsicastrum* Link ex Schauer; *S. dunniannum* H. Léveillé.


Vines perennial, herbaceous, unarmed, glabrous or sparsely pubescent. Leaves unequal paired, sometimes compound with 1 or 2 pairs of leaflets proximal to main leaflet; petiole 1–2 cm; leaf blade elliptic or ovate-hastate, 4–11 × 2–8 cm, sparsely pubescent, base hastate or with 1 or rarely 2 lobes, margin entire, apex acuminate. Inflorescences extra-axillary, lax, open, many-flowered panicles; peduncle 1–3 cm, branched. Pedicel 5–12 mm, sparsely pubescent. Calyx 1.5–2 × 2–3 mm; lobes deltate, sparsely pubescent. Corolla purple, usually with a yellow eye, 5–8 mm; lobes elliptic-lanceolate, ca. 5 mm. Berry red, globose or ovoid, 6–8 mm in diam. Seeds discoid, 1.5–2 mm in diam. Fl. summer, fr. autumn.

This taxon is doubtfully distinct from Solanum dulcamara.


Vines climbing, suberect, glabrous, unarmed. Stems hollow, angular, glabrescent or puberulent. Petiole 1–1.5 cm; leaf blade ovate or ovate-lanceolate, 3–5 × 1.5–2.5 cm, puberulent adaxially, glabrescent abaxially; upper leaves 1.5–1.8 × 0.6 cm, base rounded, slightly oblique, margin entire or preemorse, apex acuminate. Inflorescences extra-axillary, lax, open, many-flowered panicles; peduncle ca. 0.5 mm; anthers connate, 2–3.5 mm. Style slender, ca. 5.5 mm. Berry red, globose or ovoid, 6–8 mm in diam. Seeds discoid, 1.5–2 mm in diam. Fl. summer, fr. autumn.

Slopes at forest edges; 500–3500 m. Henan, SW Sichuan, Xinjiang, SE Xizang, NW Yunnan [Russia; SW Asia, Europe].

No material was seen of this species, and the above description is taken from the original publication and from the Flora of Taiwan. To judge from the description, this taxon may not be distinct from Solanum dulcamara.


Herbs climbing, suberect, glabrous, unarmed. Stems hollow, angular, glabrescent or puberulent. Petiole 1–1.5 cm; leaf blade ovate or ovate-lanceolate, 3–5 × 1.5–2.5 cm, puberulent adaxially, glabrescent abaxially; upper leaves 1.5–1.8 × 0.6 cm, base rounded, slightly oblique, margin entire or preemorse, apex acuminate. Inflorescences extra-axillary, lax, open, many-flowered panicles; peduncle ca. 2 cm, puberulent. Pedicel 5–12 mm, glabrous. Calyx ca. 2.5 mm in diam.; lobes ovate-rounded, ca. 0.5 mm, mucronate, puberulent abaxially. Corolla dark blue with basal spots adaxially; tube ca. 0.8 mm, limb ca. 4 mm; lobes lanceolate, 3–4 × 1.3 mm, pubescent at apex, ciliate. Filaments ca. 0.5 mm; anthers free, 1.8–2 mm. Ovary glabrous. Style ca. 4 mm. Fruiting pedicel 12–15 cm. Fruiting calyx spreading. Berry shiny red, globose, 5–8 mm in diam. Seeds discoid, ca. 1.5 mm in diam.

• C and N Taiwan.

No material was seen of this species, and the above description is taken from the original publication and from the Flora of Taiwan. To judge from the description, this taxon may not be distinct from Solanum dulcamara.


Vines 50–120 cm tall, glabrescent. Stems sparsely pubescent. Petiole 0.5–2.5 cm; blade of basal leaves deltate, broadly lanceolate or ovate-lanceolate, often with 2 basal lobes, 3–10 × 2–5 cm, glabrous or sparsely pubescent, base rounded or cuneate, margin entire or (3–)5-lobed, apex acuminate; blade of distal leaves ovate-lanceolate, 2–4 cm. Inflorescences terminal or extra-axillary, open, many-flowered panicles; peduncle 2–3.5 cm, glabrescent. Pedicel 6–10 mm, glabrescent. Calyx 1.5–2 × 2.5 mm; lobes deltate, 0.5 mm. Corolla purple with a green eye, 5–8 × 1 cm; lobes lanceolate, ca. 4 mm. Filaments ca. 0.5 mm; anthers oblong, free, 2.5–3.5 mm. Style slender, ca. 5 mm. Berry red, subglobose, ca. 1 cm in diam. Seeds reniform-discoid, ca. 2 mm in diam. Fl. Jun-Sep, fr. Sep-Nov.

Wastelands, slopes in valleys, near roads, by waters, open forests; 300–2900 m. Anhui, Guangdong, Guangxi, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Qinghai, Shaanxi, Sichuan, Xinjiang [Urumqi Shi], Yunnan, Zhejiang [Japan, Korea].

This taxon is doubtfully distinct from Solanum dulcamara.


Herbs climbing, suberect, puberulent or glabrous, unarmed. Stems hollow, angular, glabrescent or puberulent. Petiole 2–3 cm; leaf blade ovate to broadly ovate, ca. 9 × 6 cm, puberulent along veins and margins adaxially, glabrous abaxially, base broadly cordate to rounded, abruptly decurrent, margin entire, apex acuminate. Inflorescences extra-axillary, many-flowered panicles; peduncle 3–7 cm, branched. Pedicel 5–10 mm, puberulent. Calyx truncate at apex or sinuate, minutely pointed, puberulent adaxially; lobes subulate, mucronate, ca. 1 mm. Corolla purple, 1.5–1.5 cm; lobes elliptic or lanceolate, 6–8 mm. Filaments free, ca. 1 mm; anthers united into a tube, ca. 4.5 mm. Style ca. 6 mm. Berry red, 5–8 mm in diam. Seeds ovate, ca. 3 × 2 mm. Fl. Jun-Aug, fr. Aug-Oct.

Subshrubs climbing, woody at base, slightly branched, 30–70 cm, puberulent with simple hairs, unarmed. Stems striate with scattered lenticels. Petiole 2–3 cm; leaf blade ovate to broadly ovate, ca. 9 × 6 cm, puberulent along veins and margins adaxially, glabrous abaxially, base broadly cordate to rounded, abruptly decurrent, margin entire, apex acuminate. Inflorescences extra-axillary, many-flowered panicles; peduncle 3–7 cm, branched. Pedicel 5–10 mm, puberulent. Calyx truncate at apex or sinuate, minutely pointed, puberulent adaxially; lobes subulate, mucronate, ca. 1 mm. Corolla purple, 1.5–1.5 cm; lobes elliptic or lanceolate, 6–8 mm. Filaments free, ca. 1 mm; anthers united into a tube, ca. 4.5 mm. Style ca. 6 mm. Berry red, 5–8 mm in diam. Seeds ovate, ca. 3 × 2 mm. Fl. Jun-Aug, fr. Aug-Oct.

Moist places by water; 100–1500 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Qinghai (Xinai Xian), Xinjiang [Afghanistan, Japan, Mongolia, Russia; SW Asia].

This taxon is doubtfully distinct from Solanum dulcamara.

White bai ying

Solanum cathayanum C. Y. Wu & S. C. Huang; S. dulcamara var. chinense Dunal; S. dulcamara var. pubescens Blume; S. dulcamara var. lyratum (Thunberg) Bonati.

Vines herbaceous, much branched, 0.5–3 m tall, villous overall with elongate, many-celled hairs more than 2 mm. Petiole 1–3 cm; leaf blade elliptic or lyrate, 3–11 × 2–6 cm, base cordate or hastate, margin entire or 3–5-parted, apex acuminate. Inflorescences axillary, extra-axillary, or appearing terminal, few- to many-flowered panicles; peduncle 2–4 cm, villous. Pedicel 0.8–1.5 cm, villous. Calyx 1.5–2.5 × 3–4 mm in diam., sparsely pubescent; lobes rounded. Corolla blue-purple or white, 5–8 × 10 mm; lobes elliptic-lanceolate, ca. 4 × 2 mm, usually reflexed, puberulent at apex. Filaments ca. 0.8–1 mm; anthers free, oblong, 2.8–3.2 mm. Style glabrous, 6–8 mm. Fruiting pedicel sparsely pubescent, usually curved. Berry red or red-black, globose, 7–9 mm in diam. Seeds discoid, ca. 1.5 mm in diam., reticulate. Fl. Jun-Oct, fr. Oct-Nov.

Grasslands in valleys, near roads and fields; 100–2900 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhouchain, Henan, Hebei, Hunan, Jiangsu, Jiangxi, Shanxi, Shaanxi, Shandong, Shangxi, Sichuan, Taiwan,
Xizang, Yunnan, Zhejiang [Cambodia, Japan including Ryukyu Islands, Korea, Laos, Myanmar, Thailand, Vietnam].

Stems can be used as a medicine for treating convulsions in infants, and branches and leaves for clearing away heat and cooling the blood.


海桐叶白英 hai tong ye bai ying

*Solanum pittosporifolium* var. *pilosum* C. Y. Wu & S. C. Huang.

Shrubs to 2 m tall, glabrous or sparsely pubescent with simple hairs, unarmed. Stems sometimes angular, mostly glabrous. Petiole 0.7–2 cm; leaf blade lanceolate to ovate-lanceolate, 4–13 × 2–6.5 cm, usually glabrous, base rounded or cuneate, sometimes oblique, margin entire, apex acuminate. Inflorescences axillary, paniculate; peduncle 1–5.5 cm. Pedicel 0.5–2 cm. Calyx ca. 3 mm in diam.; lobes short deltate, ca. 1 × 2 mm, ciliate. Corolla usually white, rarely purple, with greenish spots at throat; lobes oblong-lanceolate, 4–5 × 1.5 mm, ciliate, reflexed. Filaments ca. 1 mm; anthers oblong, free, 2.5–2.8 mm. Style ca. 7 mm. Berry red, globose, 0.8–1.2 cm in diam. Seeds discoid, 2–2.8 mm in diam. Fl. Jun-Aug, fr. Sep-Dec.

Open or dense forests; 500–2500 m. Anhui, Guangdong, Guangxi, Guizhou, Hebei, Hubei, Hunan, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Vietnam].

Doubtfully distinct from *Solanum dulcamara*.


南青杞 nan qing qi

*Solanum seforthianum* var. *indatum* Handel-Mazzetti (Oesterr. Bot. Z. 83: 234. 1934) was distinguished by being densely covered overall with capitate glandular hairs of varying length, but this condition sometimes occurs in more or less typical material of *S. septemlobum*. Without seeing the type material, which was collected in S Shaanxi, the identity of this variety remains uncertain.


阳芋 yang yu

Herbs or shrubs, erect, unarmed; pubescence of curved simple, often glandular hairs. Stems angular, usually white pubescent, sometimes glabrescent. Petiole 1–2.5 cm; leaf blade ovate, 3–9 × 2–6 cm, base cuneate, usually 3–7-parted, sometimes upper leaves subentire, apex obtuse; lobes ovate-oblong to lanceolate, sparsely pubescent, entire or dentate. Inflorescences extra-axillary or appearing terminal, open panicles; peduncle 2–5 cm, puberulent or glabrous. Pedicel 5–10 mm, usually basally articulated. Calyx ca. 2 mm in diam., sparsely pubescent abaxially; lobes deltate, 0.5–1 mm. Corolla greenish purple, 8–10 × 8–10 mm, 5-parted; lobes oblong-ovate, 4–6 mm, pubescent, ciliate, reflexed. Filaments ca. 1 mm; anthers oblong, 2.5–3.5 mm. Style ca. 7 mm. Berry red, subglobose or ovoid, ca. 8 mm in diam. Seeds discoid, 2–3 mm in diam. Fl. Jun-Oct, fr. Oct-Dec.

Sunny slopes; 300–2500 m. Anhui, Gansu, Hebei, Henan, Jiangsu, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, E Xizang, Zhejiang [Russia].

*Solanum septemlobum* var. *indatum* (Handel-Mazzetti) (Oesterr. Bot. Z. 83: 234. 1934) was distinguished by being densely covered overall with capitate glandular hairs of varying length, but this condition sometimes occurs in more or less typical material of *S. septemlobum*. Without seeing the type material, which was collected in S Shaanxi, the identity of this variety remains uncertain.
Pedicel stout, 5–10 mm. Calyx cup-shaped, 5–8 mm; lobes deltate-lanceolate, 4–6 mm, acuminate at apex, pubescent as on peduncle. Corolla white, 1.5–1.8 cm; lobes ovate-oblong, 0.8–1.2 cm, acute. Filaments 1–2 mm; anthers oblong, 6–8 mm. Style 8–10 mm. Berry yellow-orange, globose, 8–10 mm in diam. Seeds discoid, 1.5–2 mm in diam. Fl. and fr. throughout the year.

Dry lands. Fujian, Taiwan [Central America; introduced elsewhere].


山茄 shui qie

Shrubs or subshrubs 50–100 cm tall, densely stellate-tomentose, armed with short, straight prickles 2–3.5 mm. Stems and branches terete, stellate tomentose, sparsely prickly. Petiole 1–3 cm, pubescent as on stems; leaf blade lanceolate to narrowly oblong, 4–15 × 1.5–5 cm, sparsely stellate tomentose or glabrate adaxially, tomentose abaxially, base cuneate, margin entire or obscurely sinuate, apex acute. Inflorescences extra-axillary or terminal, racemose panicles base cuneate, margin entire or obscurely sinuate, apex acute. Inflorescences extra-axillary or terminal, racemose panicles base cuneate, margin entire or obscurely sinuate, apex acute. Inflorescences extra-axillary or terminal, racemose panicles base cuneate, margin entire or obscurely sinuate, apex acute. Inflorescences extra-axillary or terminal, racemose panicles base cuneate, margin entire or obscurely sinuate, apex acute. Inflorescences extra-axillary or terminal, racemose panicles base cuneate, margin entire or obscurely sinuate, apex acute. Inflorescences extra-axillary or terminal, racemose panicles base cuneate, margin entire or obscurely sinuate, apex acute. Inflorescences extra-axillary or terminal, racemose panicles base cuneate, margin entire or obscurely sinuate, apex acute. Inflorescences extra-axillary or terminal, racemose panicles base cuneate, margin entire or obscurely sinuate, apex acute. Inflorescences extra-axillary or terminal, racemose panicles base cuneate, margin entire or obscurely sinuate, apex acute. Inflorescences extra-axillary or terminal, racemose panicles base cuneate, margin entire or obscurely sinuate, apex acute. Inflorescences extra-axillary or terminal, racemose panicles base cuneate, margin entire or obscurely sinuate, apex acute.
or cuneate, margin sinuate or usually 5–7-lobed, apex acute. Inflorescences extra-axillary, many-flowered racemose panicles; peduncle mostly 1- or 2-branched, 1–1.8 cm, stellate pubescent. Flowers andromonoecious. Pedicel dark, slender, 5–12 mm, bearing simple glandular hairs and stalked stellate hairs. Calyx cup-shaped, 4–5 mm, pubescence as on pedicel: lobes ovate-lanceolate, 2–3 mm. Corolla white, rotate, 1–1.3 × 1–1.5 cm; lobes ovate-lanceolate, 8–10 mm, stellate pubescent axially. Filaments ca. 1 mm; anthers 4–7 mm. Style 6–8 mm. Fruiting pedicel 1–2 cm, thickened upwards, with sparse stellate and simple glandular hairs. Fruiting calyx ca. 1.5 cm. Berry yellow, smooth, glabrous, 1–1.5 cm in diam. Seeds discoid, 1.5–2 mm in diam. Fl. and fr. throughout the year.

Roadsides, wastelands, ravines, valleys, thickets, wet places near villages; 200–2000 m. Fujian (Xiamen Shi), Guangdong, Guangxi, Guizhou, Hainan, Taiwan, S Xizang, Yunnan [native of the Caribbean, widely naturalized in tropical regions].

The young fruits are edible after cooking and are used medicinally for improving eyesight; the leaves are used for treating skin diseases.


大花茄 da hua qie

Trees to 12 m tall, sometimes armed with straight prickles, pubescent with stalked stellate hairs. Petiole 5–10 cm; leaf blade broadly ovate, 30 × 15–20 cm, scabrid with dispersed simple or stellate hairs adaxially, with sparse to dense, stalked stellate hairs and prickles abaxially, often with straight yellow or green prickles, base oblique, margin entire or sinuate-lobed, apex obtuse or acute. Inflorescences axillary or extra-axillary many-flowered racemes; peduncle mostly unbranched. Flowers showy, andromonoecious. Pedicel 0.6–1.5 cm, often leaving a conspicuous scar, with dense, bristlelike, long-stalked hairs. Calyx 1–1.5 cm, deeply lobed; lobes lanceolate, hispid with mostly simple hairs. Corolla opening deep purple, fading through blue to white over several days, 6–9 cm in diam., lobed ca. 1/3 way down, stellate hairy abaxially. Filaments 2–3 mm, glabrous; anthers oblong, apex narrowed, beaklike, 1.2–1.5 cm. Style dimorphic. Berry red, sometimes remaining green, globose, 3–4 cm in diam. Seeds lenticular, 2–3 mm in diam.

Hong Kong [widely cultivated for ornament and coffee shade in tropical and subtropical regions; native of Bolivia and Brazil].

As no material from China was seen, the description was based on American plants. The species was originally described from a plant cultivated in Hong Kong.


刺天茄 ci tian qie


Shrubs 0.5–1.5(–2) m tall, much branched, pubescent overall with dense, stalked, 5–11-rayed stellate hairs. Stems and branches with pale yellow, recurved prickles 4–10 ×1.5–7 mm, gray stellate tomentose. Leaves unequal paired; petiole 1.5–4 cm; leaf blade ovate, 5–8(–11) × 2–7(–8.5) cm, tomentose with short-stalked, 5–9(–11)-rayed stellate hairs adaxially, with long-stalked hairs abaxially, with straight needlelike prickles, base cordate or truncate, margin 5–7-sinuate lobed, apex obtuse or acute. Inflorescences extra-axillary, scorpioid racemes, 2–6 cm, sparingly branched; peduncle ca. 1.5 cm, pricklely or not. Pedicel 4–15 mm. Calyx 4–7 mm; lobes lanceolate, 3–5 mm, unequal, pubescent and prickly as on pedicel. Corolla blue-purple, sometimes white, rotate, 1–1.2 1–2 cm; lobes ovate or ovate-lanceolate, 5–8 × 2–5 mm, obtuse. Filaments ca. 1 mm; anthers oblong, 5–6 mm. Style 8–10 mm, stellate pubescent. Fruiting pedicel 1–2 cm, stellate pubescent, prickly, erect or sometimes recurved. Fruiting calyx reflexed, stellate pubescent, prickly. Berry shiny orange, globose, 0.8–1.3 cm in diam. Seeds discoid, ca. 2 mm in diam. Fl. and fr. throughout the year.

Fruits are used medicinally for relieving cough, alleviating toothache, and externally for skin disease.


苦刺 ku ci

Shrubs ca. 1 m tall, erect, pubescent overall with dense, stalked or sessile, (3–)5–9-rayed stellate hairs. Stems and branches occasionally armed with 1 or 2 prickles less than 1 mm. Leaves unequal paired; petiole 1.5–2.5 cm; leaf blade ovate, 5.5–10.5 × 4–8.5 cm, green and sparsely tomentose or sparsely glandular pubescent with 5–9-rayed stellate hairs adaxially, yellow-green with denser hairs abaxially, unarmed, base truncate to broadly cuneate, margin 5–7-sinuate, apex acute. Inflorescences extra-axillary, 10- or 11-flowered scorpioid cymes to 2 cm; peduncle 1.5–1.8 cm. Pedicel 4–5 mm, strongly recurved, ca. 1 cm in fruit, stellate tomentose. Calyx ca. 4 mm; lobes ovate, 1.5 mm, acute, stellate tomentose. Corolla white, campanulate, ca. 1 cm; lobes ovate-lanceolate, ca. 5 mm. Filaments less than 1 mm; anthers oblong, ca. 4 mm. Style ca. 7 mm, stellate-pubescent. Berry globose, ca. 1 cm in diam. Seeds discoid, ca. 2 mm in diam. Fl. and fr. autumn.

Roadsides; 1400–1500 m. Yunnan.


红茄 hong qie

Solanum integrifolium Poiret.

Herbs annual, ca. 70 cm tall, pubescent with stalked or sessile, 5–9-rayed stellate hairs. Stem and branches prickly; prickles 2–5 mm, 1–2 mm broad at base, straight or slightly curved. Upper leaves often unequal paired; petiole 2–7 cm; leaf blade ovate to oblong-ovate, 10–20 × 6–14 cm, with mixed simple and many-rayed hairs abaxially, stellate tomentose along veins and often with subulate prickles 3–7 mm, irregularly sinuate-parted, apex acuminate or obtuse. Inflorescences extra-axillary, few flowered, racemose; peduncle 1–1.5 cm. Flowers 5-meros, (6–9-meros in cultivation). Pedicel 5–12 mm, with prickles 0.2–2 mm. Calyx campanulate; lobes slightly unequal, ovate to ovate-lanceolate, 5–7 × 3–4 mm. Corolla white or slightly purplish, stellate or stellate-rotate, 1.5–2.5 cm in diam.; limb ca. 6.5 mm. Filaments 0.5–1 mm, glabrous; anthers lanceolate-elliptic, 4–5 × 0.7–1 mm, emarginate at apex and base. Ovary 4–8-locular. Style 5.7–7.5 mm. Berry orange
Solanum aculeatissimum Jacquin, Collectanea 1: 100. 1787.

Kahsi茄 ka xi qie

Solanum aculeatissimum Jacquin, Collectanea 1: 100. 1787.

The fruits are used medicinally and for food in some countries.

30. Solanum aculeatissimum Jacquin, Collectanea 1: 100. 1787.

喀西茄 ka xi qie

Solanum aculeatissimum Jacquin, Collectanea 1: 100. 1787.

The fruits are used medicinally and for food in some countries.

30. Solanum aculeatissimum Jacquin, Collectanea 1: 100. 1787.

Kahsi茄 ka xi qie

Solanum aculeatissimum Jacquin, Collectanea 1: 100. 1787.

The fruits are used medicinally and for food in some countries.

30. Solanum aculeatissimum Jacquin, Collectanea 1: 100. 1787.

喀西茄 ka xi qie

Solanum aculeatissimum Jacquin, Collectanea 1: 100. 1787.
34. **Solanum lasiocarpum** Dunal, Hist. Nat. Solanum. 222. 1813.

Solanum immane Hance ex Walpers; S. lasiocarpum var. velutinum Dunal.

Herbs or subshrubs, erect or spreading, 1–1.5 m tall, armed, densely pubescent throughout with pale yellow, many-celled stellate hairs. Stems and branches stout, with flat, erect or slightly recurved prickles 1–8 mm. Petiole 3–8 cm, often with stalked, stellate hairs and erect prickles; leaf blade ovate, 10–20 × 8–18 cm, pubescent as on stems, denser abaxially, prickly along veins on both surfaces, base truncate or sub hastate, margin 5–11-sinuate lobed, apex acute. Inflorescences extra-axillary, several flowered, scorpioid-racemose, 1.2–2 cm; peduncle ca. 3 mm. Flowers andromonoecious. Pedicel ca. 1 cm. Calyx lobes ovate, 8–10 mm. Corolla white, subrotate, 1–1.2 cm; lobes lanceolate, 7–8 mm. Style ca. 9 mm, glabrous. Fruiting pedicel erect, 1.5–1.5 cm. Fruiting calyx somewhat enlarged, reflexed. Berry orange, globose, ca. 2 cm in diam., densely hispid tarsum, hirsutum persistent. Seeds brown, ca. 2 mm in diam. Fl. Jun-Oct, fr. Nov-Dec.

Wet places in ravines and valleys, thickets, open forests, near roads, humid places, dense forests; 200–1000 m. Guangdong, Guangxi, Taiwan, S and SE Yunnan [Cambodia, India, Indonesia, Laos, Philippines, Sri Lanka, Thailand, Vietnam].


刺苞茄 cì bāo qì

Herbs or subshrubs, erect, ca. 1 m tall, armed with straight prickles, pubescent with stellate hairs. Stems and branches shaggy-tomentose with stalked, 5–9-rayed stellate hairs and erect, broad-based prickles 2–5 × 1.5 mm. Leaves paired; petiole 4.5–6 cm; leaf blade ovate-elliptic to elliptic, 16–24 × 12–19 cm, tomentose with 4–9-rayed hairs, sparsely prickly, base cuneate, margin 10–14-dentate, apex acute. Inflorescences extra-axillary, elongated, many-flowered scorpionid racemes, 5–10 cm; peduncle ca. 2 cm. Pedicel 5–10 mm. Calyx campanulate, 1–1.2 cm; lobes oblong-lanceolate, 8–9 × 3 mm, densely pubescent with pale yellow, stellate hairs. Stems of young plants glaucescent, pubescent with flat, erect or slightly recurved prickles 1–8 mm. Petiole 3–8 cm, often with stalked, stellate hairs and erect prickles; leaf blade ovate, 10–20 × 8–18 cm, pubescent as on stems, denser abaxially, prickly along veins on both surfaces, base truncate or sub hastate, margin 5–11-sinuate lobed, apex acute. Inflorescences extra-axillary, several flowered, scorpioid-racemose, 1.2–2 cm; peduncle ca. 3 mm. Flowers andromonoecious. Pedicel ca. 1 cm. Calyx lobes ovate, 8–10 mm. Corolla white, subrotate, 1–1.2 cm; lobes lanceolate, 7–8 mm. Style ca. 9 mm, glabrous. Fruiting pedicel erect, 1.5–1.5 cm. Fruiting calyx somewhat enlarged, reflexed. Berry orange, globose, ca. 2 cm in diam., densely hispid tarsum, hirsutum persistent. Seeds brown, ca. 2 mm in diam. Fl. Jun-Oct, fr. Nov-Dec.

Wet places in ravines and valleys, thickets, open forests, near roads, humid places, dense forests; 200–1000 m. Guangdong, Guangxi, Taiwan, S and SE Yunnan [Cambodia, India, Indonesia, Laos, Philippines, Sri Lanka, Thailand, Vietnam].


蒜芥茄 suàn jiè qì

Herbs or subshrubs 50–100 cm tall, puberulent with stalked stellate hairs. Stems sparingly lanate with weak, long-stalked, 7–9-rayed hairs, glabrescent, sparingly armed with erect, stout prickles 2–(5) × 1–1.5–(2.5) mm. Leaves equal paired; petiole 2–5 cm; leaf blade ovate to obovate-elliptic, 6–16(–19) × 4–10(–16) cm, pubescent as on stems, sparsely prickly along main veins, base obtuse or cuneate, margin 6–18-dentate, apex acute. Inflorescences extra-axillary, scorpioid racemes ca. 3.5 cm; peduncle 4–5 mm. Pedicel ca. 1 cm, with short prickles. Calyx subcampanulate, ca. 7 mm; lobes lanceolate, ca. 4 × 1 mm, pubescent, prickly. Corolla white, broadly campanulate, 1.2–1.5 × 1.5 cm; lobes lanceolate, ca. 6 × 1.5 mm, stellate hairy. Filaments ca. 1.5 mm; anthers ovate-lanceolate, ca. 6 mm. Ovary glabrous. Style ca. 9 mm, glabrous. Fruiting pedicel 0.9–1.1 cm. Fruiting calyx with dense stellate hairs, closely enveloping most of berry, with numerous short yellowish prickles. Berry globose, ca. 1.2 cm in diam., glabrous. Seeds orbicular, ca. 2.5 mm in diam. Fl. Apr-Aug, fr. Aug-Oct.

Near roads, limestone mountains, thickets, forests; 300–900 m. Guangxi (Pingqiu Xian), Guizhou, Yunnan [India, Myanmar].

37. **Solanum sisymbriifolium** Lamarck, Tabl. Encycl. 2: 25. 1794.

蒜芥茄 suàn jiè qì

Herbs annual, copiously armed, pubescent with glandular, many-celled, simple and stellate hairs. Stems erect, with yellow or orange-yellow, subulate prickles 2–10 × 1.5 mm. Leaves simple or sometimes pinnate; petiole 1.5–4 cm; leaf blade obl ong or ovate, 4.5–10(–14) × 2.5–5(–8) cm, stellate pubescent, sometimes shaggy, often armed along main veins on both surfaces, pinnately lobed or parted; lobes pinnately lobed or dentate, apex acute. Inflorescences axillary or extra-axillary, scorpioid racemes; peduncle branched or not. Pedicel 5–10 mm. Calyx cup-shaped, ca. 1 cm; lobes ovate-lanceolate, ca. 5 × 2 mm, pubescent and prickly as on stems. Corolla purplish or white, stellate, 1.6–3.5 cm; lobes ovate, 10 × 4–8 mm, sparsely hairy. Filaments ca. 1 mm, glabrous; anthers lanceolate, ca. 9 mm. Ovary puberulent. Style 1–1.2 cm. Fruiting pedicel 1–1.5 cm, stout. Fruiting calyx enlarged, longer than fruit, densely prickly and enveloping most berry, ultimately flaring wide and exposing it. Berry bright red, subglobose, 1–2 cm in diam. Seeds reniform, ca. 2.5 × 2 mm. Fl. and fr. warm months of the year.

Cultivated in Guangdong and Yunnan (Kunming), naturalized in Kunming [native to South America; naturalized in Africa, Australia].

38. **Solanum angustifolium** Miller, Gard. Dict. ed. 8, no. 15. 1768.

狭叶茄 xiá yè qì

Solanum cornutum Lamarck; S. heudesii H. Léveillé.

Herbs annual, 30–150 cm tall, copiously prickly, stellate pubescent. Stems of young plants glaucescent, pubescent with short, simple, often glandular hairs to 0.2 mm; older stems with scattered stellate hairs; prickles yellow, straight, 1–1.8 cm. Petiole 3–8 cm, armed; leaf blade broadly ovate, 10–20 × 3–8 cm, stellate pubescent, prickly along veins, 2- or 3-pinnatifid, pinnatisect near base; lobes irregularly ovate, dentate or sinuate, apex acute or obtuse. Inflorescences extra-axillary, 7–11-flowered scorpionid racemes, 4–12 cm; peduncle 5–10 mm. Pedicel ca. 5 mm. Calyx campanulate,
divided nearly to base; lobes lanceolate, 5–10 mm, pubescent and pricky as on stems. Corolla yellow, often with an abaxial reddish band on lobes drying purplish, stellate, 1.5–2 × 2.5–3.5 cm; lobes lanceolate, stellate hairy. Filaments ca. 1 mm; anthers narrowly lanceolate, attenuate, 1.2–1.7 cm. Style 1.5–1.7 cm. Fruiting pedicel 1–1.5 cm. Fruiting calyx enlarged, enveloping most of berry, sparsely stellate-hairy, densely prickle, 1–2 cm. Berry globose, 1–1.2 cm in diam. Seeds dark brown, discoid, 2.2–2.8 mm in diam., minutely pitted, reticulately ridged. Fr. Jul-Sep, fr. Aug-Oct.

Adventive in Jiangsu [tropical Mexico south into Honduras]. Inclusion of this species is based on the original description of *Solanum hennedi*, the type of which we have not seen. Because no material from China was seen of this species, the above description is taken from a range of Mexican material.


**Solanum undatum** Lam. n. var. esculentum (Dunal) Nees; *S. melongena* var. serpentinum (Linnaeus) *S. melongena* var. depressum Linnaeus.

Herbs or subshrubs to 60 cm tall, sparsely armed, pubescent with stellate hairs. Stems and branches minutely tomentose, sometimes with stout recurved prickles. Petiole 2–4.5 cm; leaf blade ovate to oblong-ovate, 6–18 × 5–11 cm, stellate-tomentose or sometimes with a few fine prickles on both surfaces, denser abaxially, base oblique, margin sinuate-lobed, apex obtuse. Inflorescences mostly solitary flowers, rarely reduced racemes; peduncle obsolete. Flowers andromonoecious. Pedicel 1–1.8 cm. Calyx stellate tomentose, often with ca. 3 mm prickles abaxially; lobes lanceolate. Corolla purplish or violet, rotate, 3(–5) cm; lobes deltate, ca. 1 cm. Filaments ca. 2.5 mm; anthers ca. 7.5 mm. Style 4–7 mm. Berry black, purple, pink, brown, or yellow, yellowish when completely mature, greatly variable in form and size, mostly more than 6 cm in diam., with a thick, spongy, whitish mesocarp and sepal region. Seeds lenticular, yellowish, 2.8–3.9 × 2.5–3.5 mm.

Widely cultivated in China and other countries for its edible fruits.


**Solanum virginianum** Lin. n. var. esculentum (Dunal) Nees; *S. melongena* var. serpentinum (Linnaeus) *S. melongena* var. depressum Linnaeus.

Herbs erect or creeping, sometimes woody at base, 50–70 cm tall, copiously armed with sturdy, needlelike, broad-based prickles 0.5–2 × 0.5–1.5 mm, pubescent with 7–9-rayed stellate hairs, overall glabrescent. Leaves unequal paired; petiole 2–3.5 cm, prickly, with sessile stellate hairs; leaf blade ovate-oblong, 4–9 × 2–4.5 cm, pubescent and prickly along veins, glabrescent, base subordinate or unequal, margin usually 5–9-lobed or pinnately parted, lobes unequal, sinuate, apex acute. Inflorescences elongate racemes 4–7 cm; peduncle unbranched, copiously armed. Pedicel ca. 1 cm. Calyx campanulate, ca. 1 cm in diam.; lobes oblong, pubescent, prickly. Corolla blue-purple, rotate, 1.4–1.6 × 2.5 cm; lobes ovate-deltate, 6–8 mm, densely pubescent with stellate hairs. Filaments ca. 1 mm; anthers ca. 8 mm. Style ca. 1 cm. Fruiting pedicel 2–3.6 cm, with prickles and sparse stellate hairs. Fruiting calyx prickly, sparsely pubescent. Berry pale yellow, 1.3–2.2 cm in diam. Seeds subreniform, ca. 1.5 mm in diam. Fl. Nov-May, fr. Jun-Sep.

Sandy river beaches; 100–1300 m. Hainan, Hubei, Sichuan, Taiwan, Yunnan [Afghanistan, India, S Japan, Malaysia, Nepal, Sri Lanka, Thailand, Vietnam; Africa, SW Asia, Pacific Islands].

Solasonidine can be extracted from the fruits, a source of raw material for hormone synthesis.


**Lycianthes** Lam. n. var. esculentum (Dunal) Nees; *S. melongena* var. serpentinum (Linnaeus) *S. melongena* var. depressum Linnaeus.

Shrubs, subshrubs, or rarely herbs or creeping herbs, unarmed; pubescence of many-celled, simple or 2- to many-branched hairs. Leaves solitary, paired, or sometimes unequal paired; leaf blade entire. Inflorescences 1–10-flowered fascicles in leaf axils; peduncle obsolete or absent. Flowers actinomorphic, 5- or rarely 4-merous, pedicellate. Calyx cup-shaped, truncate, often with 5–10 subapical teeth; teeth linear-subulate or umbonate, equal or not. Corolla white or purple-blue, rotate or stellate, shallowly or

**Solanum undatum** Lam. n. var. esculentum (Dunal) Nees; *S. melongena* var. serpentinum (Linnaeus) *S. melongena* var. depressum Linnaeus.
deeply divided. Stamens inserted at apex of corolla tube; filaments short, equal; anthers elliptic dehiscing by oblique apical pores. Ovary 2-locular; ovules numerous. Style glabrous. Fruit a red or red-purple berry, globose. Seeds small, numerous, deltate, deltate-reniform, or lenticular, finely reticulate.

About 180 species: most in Central and South America, ten species in China.

1a. Herbs perennial; stems creeping, often rooting at nodes; flowers solitary, rarely 2 ........................................ 9. L. lysimachoides
1b. Shrubs or herbs; stems erect, not rooting at nodes; flowers mostly in fascicles, rarely solitary.

2a. Calyx usually lacking teeth, sometimes 1-toothed; plants puberulent or glabrous ........................................ 7. L. leavis
2b. Calyx 5–10-toothed; plants pubescent with many-celled or branched hairs.

3a. Calyx teeth longer than tube; corolla white ................................................................. 4. L. macrodon
3b. Calyx teeth mostly shorter than tube; corolla white or pale purple to purple-blue.

4a. Branchlets, petiole, pedicel, and calyx with dense, yellow simple hairs and 2- to many-celled hairs; corolla white to pale purple.

5a. Inflorescences mostly more than 1-flowered; blades of major leaves more than 4 cm .................. 1. L. biflora
5b. Flowers solitary; blades of major leaves less than 3.5 cm ........................................... 10. L. solitaria
4b. Branchlets, petiole, pedicel, and calyx with only simple hairs; corolla purple to purple-blue.

6a. Teeth of fruiting calyx 0.5–1 mm.
7a. Teeth of fruiting calyx 10 ................................................................. 8. L. neesiana
7b. Teeth of fruiting calyx 5 ................................................................. 6. L. marilipoensis
6b. Teeth of fruiting calyx mostly more than 1.5 mm.

8a. Plant soon glabrous; pedicel usually less than 1 cm ........................................................ 5. L. shunningensis
8b. Plant sparingly villous with many-celled hairs; pedicel 1–1.5 cm.
9a. Leaf blade glabrescent except on veins; pedicel and calyx sparingly strigose with ascending hairs

9b. Leaf blade persistently downy-puberulent; pedicel and calyx densely puberulent with mostly short, weak hairs ...................................................... 3. L. yunnanensis


红丝线 hong si xian

Shrubs or subshrubs 0.5–1.5 m tall; pubescence yellowish, of simple, often moniliform hairs mixed with many-celled ones. Petiole 0.5–4 cm; leaf blade dimorphic; blade of major leaf elliptic-ovate, 9–15 × 3.5–7 cm, sparsely pubescent axially, denser abaxially, base cuneate, apex acute or acuminate; blade of minor leaf broadly ovate, 2.5–4 × 2–3 cm, base broadly rounded and decurrent, apex acute. Inflorescences several-flowered fascicles in leaf axils. Pedicel 0.5–2 cm. Calyx cup-shaped, 3–6 × 3–3.5 mm, 10-dentate; teeth linear-subulate, 2–3 mm. Corolla pale purple or white, often drying dark, stellate, 8–12 × 8–10 mm; lobes lanceolate, 6 × 1.8 mm. Filaments ca. 1 mm; anthers ca. 3 mm, sometimes pubescent adaxially. Style 8–9 mm. Flowering pedicel 1–2 cm. Fruiting calyx densely pubescent and simple and branched hairs; teeth elongate, 3–3.5 mm. Berry red, globose, 6–9 mm in diam. Seeds numerous, pale yellow, ovate to subdeltate, ca. 2 × 1.5 mm, reticulate.

China, India, Indonesia, Japan, Malaysia, New Guinea, Philippines, Thailand.

1a. Leaves variously pubescent, not brownish pubescent abaxially, blade often more than 9 × 3.5 cm; calyx 5–6 mm ................. 1a. var. biflora
1b. Leaves densely brownish pubescent abaxially, blade mostly less than 7.5 × 3.7 cm; calyx 3–4 mm ......................... 1b. var. subtusochracea

1a. Lycianthes biflora var. biflora
红丝线 hong si xian


Leaves variously pubescent, mostly greenish; blade often more than 9 × 3.5 cm. Pedicel 0.5–2 cm. Calyx 5–6 mm. Corolla pale purple or white. Anthers sometimes pubescent. Fl. May–Aug, fr. Jul–Nov.

Wet places of wastelands, forests, roadsides, by waters, valleys; 100–2300 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Sichuan, Taiwan, Yunnan [India (Sikkim), Indonesia, Japan, Malaysia, New Guinea, Philippines].

Because no material of the Taiwanese endemic var. kotoensis has been examined, the taxon is placed in the synonymy above with some hesitation.


密毛红丝线 mi mao hong si xian


Roadsides, forests; 500–2000 m. Guizhou, Yunnan [Thailand].


鄂红丝线 e hong si xian


Shrubs or subshrubs 1–2 m tall, pubescent throughout with short simple hairs. Leaves unequal paired; petiole 5–10 mm; blade of major leaf elliptic-lanceolate, 7–10 × 3–5 cm, sparsely pubescent adaxially, more densely so abaxially, surfaces of different colors, base cuneate, apex acute; blade of minor leaf ovate, 3–4 × 1.5–2.5 cm, base rounded, decurrent, apex obtuse. Inflorescences 2–4-flowered fascicles in leaf axils. Pedicel 1–1.5 cm. Calyx cup-shaped,
4–5.5 × 6–6 mm; teeth 10, linear-subulate, 1.5–2 mm, pubescent. Corolla purple-blue, 8–9 mm; lobes lanceolate, ca. 6 × 2.5 mm. Filaments ca. 0.5 mm; anthers oblong-ovate, ca. 3 mm, sometimes puberulent. Ovary glabrous. Style 8–10 mm, puberulent. Fruiting pedicel 1.2–1.6 cm. Berry red, 6–8 mm in diam., mucronate. Seeds pale yellow, subdeltate, 2–1.5 × 0.5–1 mm. Fl. May-Aug, fr. Sep-Nov.

Roadsides, forests; 400–1400 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan (Yongshun Xian), Sichuan, Yunnan.


Dian hong si xian  


Shrubs ca. 1 m tall, whole plant with dense, pale yellow, many-celled villous hairs. Leaves unequal paired; petiole 1–1.5 cm; blade of major leaf long elliptic, 8–20 × 3–7 cm, pubescent with many-celled hairs, sometimes glabrescent adaxially, base cuneate, decurrent on petiole, apex acute or acuminate; blade of minor leaf ovate, 3–7 × 1.5–3 cm. Inflorescences 4–6-flowered fascicles in leaf axils. Pedicel 1–1.5 cm. Calyx cup-shaped, ca. 5 × 4 mm; teeth 10, linear-subulate, 2–3 mm. Corolla purple, stellate, ca. 1 cm, 5-parted; lobes broadly lanceolate, 6–7 mm. Filaments ca. 0.5 mm; anthers oblong, ca. 3 mm, glabrous. Style ca. 6–8 mm, glabrous. Fruiting pedicel 1.8–2 cm, sparsely long villous. Berry purple-red, 0.8–1.2 cm in diam. Seeds deltate-reniform, subdeltate, 2–1.5 × 0.5–1 mm. Fl. May-Aug, fr. Sep-Nov.

Open slopes, forests, forest edges; 1000–1700 m. Yunnan.


大齿红丝线  da chi hong si xian


Shrubs to subshrubs ca. 1 m tall; young branchlets with erect, simple hairs, mostly glabrescent, sometimes with persistent, scattered branched hairs. Leaves unequal paired; petiole 0.5–2 cm; blade of major leaf lanceolate to elliptic-lanceolate, 5–9 × 3–4 cm, with sparse many-celled hairs adaxially, base decurrent, apex acute or acuminate; blade of minor leaf ovate, 2–4 × 1.5–1.7 cm. Inflorescences 1–3-flowered fascicles in leaf axils. Pedicel 1–1.5 cm. Calyx cup-shaped to campanulate, 6–7 mm; teeth 10, subulate, slightly unequal, 4–4.5 mm. Corolla white, stellate, ca. 1 cm; lobes lanceolate, 8–11 × 2–3 mm, with green basal spots, ciliate. Filaments ca. 0.3 mm; anthers oblong, 3–3.5 mm. Style 8–10 mm. Fruiting pedicel 5–12 mm, pubescent with many-celled hairs. Fruiting calyx teeth 5–5.5 mm. Berry red, subglobose, 0.8–1 cm in diam. Seeds deltate-reniform, ca. 1.2 mm. Fl. Jun-Sep, fr. Sep-Dec.

Near ditches, wet places at edges of forests; 1500–2300 m. Taiwan, Yunnan [Bangladesh, Bhutan, India, Nepal, Thailand].

This species was recorded in FRPS on the basis of two collections that were assigned with hesitation. The record here is based on a collection from Yunnan, Henry 12273, which agrees with the type collection, Wallich 2621, as seen on microfiche. Three varieties described by Bitter from India were recorded in FRPS, but it was said that the Chinese material was not a good match for any of them, and we have not seen authenticated material.


顺宁红丝线  shun ning hong si xian

Shrubs 1.5–2.5 m tall. Branchlets sparsely pubescent, glabrescent. Leaves unequal paired; petiole of major leaf 0.5–2 cm, that of minor leaf 0.2–1 cm; blade of major leaf oblong, 6–17 × 2.8–7.4 cm, ciliate, with sparse many-celled hairs adaxially, sparsely pubescent abaxially along veins; blade of minor leaf ovate, 2.7 × 1.5–5.5 cm. Inflorescences 4–6-flowered fascicles in leaf axils. Pedicel 5–10 mm, sparsely pubescent, glabrescent. Calyx cup-shaped; teeth 10, slightly unequal, 2–3 mm, often spreading, glabrescent. Corolla purple-blue, ca. 1.5 cm in diam., 5-parted; lobes lanceolate, 7 × 1.5–2 mm. Filaments ca. 0.4 mm; anthers oblong, 3–3.5 mm, sparsely white pubescent. Fruit not seen. Fl. Jul.

Thickets; 2200 m. Yunnan (Shunning Xian).


麻栗坡红丝线  ma su po hong si xian

Subshrubs 1–2 m tall, glabrous throughout. Leaves unequal paired; petiole of major leaf 1–1.5 cm, that of minor leaf 0.5–1.2 cm; blade of major leaf long elliptic, 10–14 × 6–6.5 cm, base cuneate, apex caudate-acuminate; blade of minor leaf ovate-lanceolate, 3.8–8.5 × 1.7–3.5 cm. Flowers not seen. Infructescences usually 2–4(–8)-fruited fascicles in leaf axils. Fruiting pedicel usually 2–3 cm. Fruiting calyx cup-shaped, 3.3–5 × 5–7 mm; teeth 5, slightly unequal, 0.5–1 mm. Berry globose, 6–7 mm in diam. Seeds brown-yellow, subdeltate, discoid, 1.5–2 × 1–1.2 mm. Fr. winter.

Forests, calcareous slopes; 1100–1400 m. SE Yunnan.


缺齿红丝线  que chi hong si xian

Solanum laeve Dunal in Poiret, Encycl. suppl. 3: 751. 1813.

Shrubs 1–2 m tall, glabrescent or pubescent with simple hairs. Stem puberulent. Leaves unequal paired; petiole of major leaf 5–10 mm, that of minor leaf 3–5 mm; blade of major leaf elliptic, 10–20 × 4–8 cm, membranous, sparsely pubescent or glabrescent adaxially, glabrous abaxially, puberulent along veins, base cuneate, margin entire, apex acuminate; blade of minor leaf resembling that of major leaf, 3–8 × 1.5–3.5 cm. Inflorescences 2–7-flowered axillary fascicles. Pedicel 5–10 mm, puberulent. Calyx cup-shaped, 2–3 × 2–3 mm, apex entire, sometimes with 1 tooth ca. 0.5 mm. Corolla purple or white with purple apex, stellate, ca. 8 mm; lobes lanceolate-elliptic, ca. 5 × 1.2 mm, glabrescent. Filaments ca. 0.5 mm; anthers oblong, ca. 2.5 mm. Style slender, 7–8 mm. Berry globose, 5–6 mm in diam., glabrous. Seeds ovate, discoid, ca. 1.5 × 1 mm. Fl. Aug-Oct, fr. Oct-Dec.

Forests, streamsides, wet places; 700–1000 m. Guangxi, Hainan, Yunnan [Indonesia].

The application of this specific epithet is tentative, and the record is based on material at the Natural History Museum, London.

  荻齿红丝线 jie chi hong si xian


  Shrubbs 1–2 m tall, pubescent with simple ascending hairs, glabrescent. Branchlets simple or dichotomously branched. Leaves unequal paired; petiole of major leaf 2–15 mm, that of minor leaf 1–5 mm; blade of major leaf lanceolate or elliptic, 4–18 × 3–5 cm, sparsely puberulent adaxially, glabrous or puberulent abaxially, base cuneate, apex acute; blade of minor leaf 1–8.5 × 2–5 cm. Inflorescences solitary or 2–9-flowered fascicles in leaf axils. Pedicel 8–10 mm, densely pubescent or glabrescent. Calyx cup-shaped, ca. 2.5 × 3 mm; teeth 1–10, 0.5–1 mm. Corolla blue, white, or purplish, stellate, 1.8 cm in diam.; filaments ca. 1 mm, glabrous; anthers ca. 3 × 1 mm. Style ca. 8 mm.

  Plants sparingly pubescent or glabrescent. Petiole of major leaf 0.8–3 cm, that of minor leaf 0.5–2 cm; blade of major leaf ovate, elliptic, to ovate-lanceolate, 4.5–7 × 2.5–3.5 cm, sparsely pubescent on veins, ciliate, base cuneate, rounded, or cordate, apex acuminate; blade of minor leaf 2–4.5 × 1.2–2.8 cm. Inflorescences 1- (or 2-)flowered fascicles. Corolla white or pale purple.


  茎根红丝线 jing gen hong si xian

  *Solanum lysimachioides* Wallich in Roxburgh, Fl. Ind. 2: 257. 1824; *Lycianthes bifiola* (Loureiro) Bitter subsp. *lysimachioides* (Wall.) Deb; *S. macrodon* Wallich ex Nees var. *lysimachioides* (Wall.) C. B. Clarke.

  Herbs sparingly pubescent or glabrescent. Petiole of major leaf 0.8–3 cm, that of minor leaf 0.5–2 cm; blade of major leaf ovate, elliptic, to ovate-lanceolate, 4.5–7 × 2.5–3.5 cm, sparsely pubescent on veins, ciliate, base cuneate, rounded, or cordate, apex acuminate; blade of minor leaf 2–4.5 × 1.2–2.8 cm. Inflorescences 1- (or 2-)flowered fascicles. Corolla white or pale purple.

9a. **Lycianthes lysimachioides** var. *lysimachioides*

  单花红丝线 dan hua hong si xian

  *Solanum lysimachioides* Wallich in Roxburgh, Fl. Ind. 2: 257. 1824; *Lycianthes bifiola* (Loureiro) Bitter subsp. *lysimachioides* (Wall.) Deb; *S. macrodon* Wallich ex Nees var. *lysimachioides* (Wall.) C. B. Clarke.

  *Lycianthes lysimachioides* var. *lysimachioides* Herbs perennial, to 1.5 m, trailing, prostrate, or perhaps climbing, rooting at nodes; pubescence of many-celled straight hairs. Leaves unequal paired; petiole of major leaf 0.8–3 cm, that of minor leaf 2–3 mm, sometimes pubescent; blade of major leaf ovate, elliptic, to ovate-lanceolate, 3–7 × 2.5–7.5 cm, pubescent on both surfaces or glabrescent abaxially, ciliate, base cuneate, rounded, or cordate, apex acuminate or acute; blade of minor leaf 2–4.5 × 1.2–2.8 cm. Inflorescences 1- (or 2-)flowered fascicles; peduncle absent. Pedicel 8–10 mm. Calyx cup-shaped to campanulate, ca. 5.5–7 mm, 10-veined. Corolla white, pink, or pale purple, stellate, 1.8 cm in diam.; lobes lanceolate, 10 × 3–4 mm, often reflexed at apex, puberulent abaxially. Filaments 1 mm, glabrous; anthers 3–3.5 × 1.2 mm. Ovary glabrous. Style slender, ca. 8 mm. Fruiting pedicle 0.5–1.5 cm. Berry red or orange, globose, 5–6(–8) mm in diam. Seeds pale yellow, deltate-reniform or discoid, ca. 1.2 mm in diam., finely reticulate. Fr. winter.


  茎根红丝线 jing gen hong si xian


  *Lycianthes lysimachioides* var. *caulorrhiza* Herbs perennial, to 1.5 m, trailing, prostrate, or perhaps climbing, rooting at nodes; pubescence of many-celled straight hairs. Leaves unequal paired; petiole of major leaf 0.8–3 cm, that of minor leaf 2–3 cm, hairy; blade of major leaf ovate, elliptic, 3–5 × 2–3.5 cm, hairy, base rounded or cuneate, apex acuminate or acute; blade of minor leaf 1.2–2 × 1.5–1.5 cm. Corolla white to pink.


  中华红丝线 zhong hua hong si xian

  *Lycianthes lysimachioides* var. *sinensis* Herbs perennial, to 1.5 m, trailing, prostrate, or perhaps climbing, rooting at nodes; pubescence of many-celled straight hairs. Leaves unequal paired; petiole of major leaf 0.8–3 cm, that of minor leaf 2–3 cm, hairy; blade of major leaf ovate, elliptic, 3–5 × 2–3.5 cm, hairy, base rounded or cuneate, apex acuminate or acute; blade of minor leaf 1.2–2 × 1.5–1.5 cm. Corolla white to pink.


  单果红丝线 dan guo hong si xian

  *Lycianthes solitaria* Herbs or subshrubs; pubescence of villous simple hairs mixed with 2-branched hairs. Branchlets, petiole, and fruiting pedicel villous. Leaves unequal paired; petiole 2.5–5 mm; blade of major leaf ovate, 1.5–3.5 × 1–2.5 cm, sparsely...
pubescent adaxially, densely pubescent abaxially, base rounded or cuneate, apex acute; blade of minor leaf 0.8–2 × 0.8–1.5 cm. Flowers not seen. Berry solitary in leaf axils, red, 7–8(–10) mm in diam. Fruiting calyx teeth 10, linear-subulate, 1–1.5 mm. Seeds pale yellow, deltate-reniform, 2Øx 1.2 mm. Fl. Jul, fr. Sep-Nov.

- Near ditches in evergreen forests; 1700 m. Xizang (Zayü Xian).

This species is known only from the type.

15. LYCOPERSICON Miller, Gard. Dict. Abr. ed. 4. 1754.

番茄属 fan qie shu

Herbs annual or perennial, unarmed; pubescence of simple or glandular hairs. Leaves petiolate, mostly compound with interstitial leaflets. Inflorescences appearing axillary or lateral, racemose; peduncle sometimes forked. Flowers pedicellate, 5–9-merous. Calyx campanulate, slightly enlarged or not. Corolla yellow, rotate, deeply lobed. Stamens inserted in corolla tube; filaments short; anthers slender, coherent, attenuate and long apiculate at apex, dehiscing longitudinally. Ovary 2–5-loculed. Style filiform; stigma minute, capitulate. Fruiting calyx hardly enlarged. Berry red, orange, yellow, or green, mostly globose, rarely grooved, sometimes pubescent. Seeds numerous, discoid, sometimes pubescent; embryo strongly curved.

Nine species: South and North America, one species widely cultivated in China.

1. **LYCOPERSICON esculentum** Miller, Gard. Dict. ed. 8, no. 2. 1768.

番茄 fan qie

*Lycopersicon lycopersicum* (Linnaeus) Karsten; *Solanum lycopersicum* Linnaeus.

Herbs annual, sprawling, 0.6–2 m tall, viscid pubescent, odorous. Petiole 2–5 cm; leaf blade mostly pinnately compound or divided, sometimes entire, 10–40 cm, base oblique, cuneate, apex obtuse; leaflets mostly 5–9, sessile or petiolulate, unequal, ovate or oblong, 5–7 cm, entire or irregularly dentate, sparingly glandular pilose. Peduncle 2–5 cm, little or not branched, often 3–7-flowered. Pedicel 1–1.5 cm. Calyx rotate-campanulate, lobes lanceolate. Corolla 2–2.5 cm in diam.; lobes narrowly oblong, 8–10 mm, often reflexed. Filaments ca. 1 mm; anthers 6–10 mm. Style ca. 1.2 cm. Berry red or orange-yellow, subglobose, fleshy, juicy, shiny. Seeds straw colored, 2–4 mm, pilose. Fl. May-Sep, fr. Sep-Nov.

Widely cultivated in China [native to Mexico and South America].

Fruits are used as a vegetable.


茄参属 qie shen shu

*Mairella* H. Léveillé.

Herbs perennial, scapose; pubescence of simple hairs. Roots stout, vertical. Stems short, sometimes branched; axis sometimes elongated into a scape. Leaves often subsessile and forming a basal rosette; leaf blade entire, sinuate, or dentate, often undulate, sometimes reduced. Flowers in leaf or bract axils; peduncle absent; bracts membranous. Flowers actinomorphic, 5-merous. Pedicel sometimes elongated. Calyx rotate-campanulate, deeply lobed. Corolla campanulate, lobed. Stamens inserted in distal part of corolla tube, included; filaments slender, pubescent, at least basally; anthers oblong, dehiscing longitudinally. Disc evident, lobed. Ovary 2-locular; ovules numerous. Stigma slightly expanded. Fruiting calyx somewhat enlarged. Fruit yellow or orange, globose or ovoid juicy berry, becoming unilocular. Seeds compressed, reticulate; embryo curved, peripheral.

About four species: SW Asia, Europe; one species in China.


茄参 qie shen

*Anisodus caulescens* (C. B. Clarke) Diels; *A. mariae* Pascher; *Mairella yunnanensis* H. Léveillé; *Mandragora chinthaensis* Kuang & A. M. Lu; *Mandragora tibetica* Grubov.

Herbs perennial, mostly scapose, 20–60 cm tall, pubescent with simple or glandular hairs. Rhizome sturdy, fleshy, elongated or not, 5–22 cm. Stems sometimes present, 10–40 cm, occasionally branched. Leaves mostly basal, sometimes on ascending stems; leaf blade obovate-oblong to oblanceolate, 3–20 cm × 1.5–5 cm, pubescent, densely ciliate, base narrow, decurrent, apex obtuse. Peduncle 1–17 cm; bracts sessile, decurrent, membranous, apex obtuse. Flowers solitary, axillary, sometimes nodding; pedicel stout, 6–20 cm. Calyx campanulate, divided to halfway; lobes ovate to deltate. Corolla dark purple or yellow, divided halfway; lobes broadly ovate to deltate. Filaments ca. 7 mm; anthers 1.5–5 mm. Style ca. 4 mm; stigma slightly 2-lobed. Fruiting calyx becoming enlarged, campanulate, sometimes exceeding berry. Berry globose, 2–2.5 cm in diam. Seeds yellow, compressed-reniform, ca. 2 mm. Fl. May-Jul, fr. Jul-Sep.
Grassy slopes; 2200–4200 m. SE Qinghai, W Sichuan, E Xizang, NW Yunnan [Bhutan, India (Sikkim), Nepal].

The roots contain hyoscyamine and anisodamine, which are used medicinally.


曼陀罗属 man tuo luo shu

Shrubs or annual or perennial herbs; pubescence of simple sometimes glandular hairs. Leaves petiolate; leaf blade simple, entire or sinuate-dentate. Inflorescences solitary flowers in leaf axilis or branch forks; peduncle, bracts, and bracteoles absent. Flowers actinomorphic, large. Pedicel often stout. Calyx long tubular or cylindric, often circumscissile near base. Corolla elongated, funnelform; lobes sometimes cuspidate. Anthers mostly elongated, dehiscing longitudinally, included. Ovary 2–4-locular.

Fruit a dry capsule, 4-valved or irregularly dehiscent, prickly or unarmed, often subtended by remnants of persistent calyx. Seeds black, ovate or discoid, ca. 4 mm in diam. Fl. Jun-Oct, fr. Jul-Nov.


About 11 species: North and South America, three species in China.

1a. Fruit erect, regularly 4-valved; calyx tube 5-angular; corolla less than 11 cm; seeds black; anthers less than 5 mm

1b. Fruit horizontal or pendulous, irregularly 4-valved; calyx tube cylindric; corolla more than 11 cm; seeds brown; anthers more than 7 mm.

2a. Plants glandular pubescent; capsules densely gray-white pubescent with slender prickles

2b. Plants glabrescent; capsules tuberculate or with stout-based prickles


曼陀罗 man tuo luo

Herbs or subshrubs, sometimes robust, 0.5–1.5 m tall, glabrescent. Petiole 3–5.5 cm; leaf blade broadly ovate, 8–17 × 4–14 cm, membranous, glabrescent, base asymmetric, cuneate, irregularly sinuous or dentate-lobed, apex acuminate, veins 3–5 pairs. Flowers erect. Pedicel 5–12 mm. Calyx tubular, 5-angular, 3–5 cm. Corolla white or pale purple, greenish at base, sometimes purple distally, funnelform; limb 3–5 cm in diam.; lobes 6–10 cm, mucronate at apex. Filaments ca. 3 cm; anthers 3–4 mm. Capsules erect, globose or ovoid, 3–4.5 cm × 2–4 cm, with copious prickles, rarely smooth, dehiscing by 4 equal valves, subtended by remnants of persistent calyx. Seeds black, ovate or discoid, 4 cm in diam. Fl. and fr. Mar-Dec.

2. Datura inoxia Miller, Gard. Dict. ed. 8, no. 5. 1768.

洋金花 yang jin hua

* Datura inoxia var. stramonium (Linnaeus) Torrey; * D. tatula Linnaeus.

Plants glabrescent; capsules tuberculate or with stout-based prickles


洋金花 yang jin hua

Herbs annual, 0.5–1.5 m tall, glabrescent. Stems often dark violet. Petiole 2–6 cm; leaf blade ovate or broadly ovate, 5–20 × 4–15 cm, membranous, glabrescent, base truncate or cuneate, asymmetrical, margin irregularly sinuate-dentate, lobed, or entire, apex acuminate; veins 4–6 pairs. Flowers erect. Pedicel ca. 1 cm. Calyx tubular, 4–9 cm. Corolla white, yellowish, or pale purple, funnelform, sometimes doubled or tripled, 14–20 cm; limb 6–10 cm in diam.; lobes elongate. Anthers 1–1.2 cm. Capsules deflexed, subglobose, ca. 3 cm in diam., tubercul ate, irregularly 4-valved, subtended by remnants of persistent calyx. Seeds pale brown, reniform-discoid, ca. 3 mm in diam. Fl. and fr. Mar-Dec.

Grassy and sunny slopes, near houses, also commonly cultivated in many cities: 1200–2100 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Taiwan, Yunnan [native of the Americas; long introduced and naturalized in Asia].

The whole plant, especially seeds, toxic. The flowers are used as an anaesthetic.

夜香树属 ye xiang shu shu

Shrubs or trees, glabrous or pubescent with simple or branched hairs. Leaves solitary, simple, petiolate, entire. Inflorescences terminal or axillary, racemose or paniculate, sometimes clustered in leaf axils, often bracteate or bracteolate. Flowers 5-merous. Calyx campanulate or tubular. Corolla long tubular; tube sometimes expanded or contracted around anthers, sometimes pubescent abaxially; limb lobed, usually spreading. Stamens inserted at various levels in corolla tube; filaments sometimes pubescent or appended at or below point of insertion; anthers dehiscing longitudinally; disc mostly evident. Ovary 2-locular; ovules few to several, rarely to 20. Style slender; stigma entire or 2-lobed, rarely exerted. Fruit a berry, mostly white or blackish, globose, ovoid, or oblong, often juicy. Seeds 1 or several, oblong; embryo straight or slightly curved; cotyledons ovate, oblong and much wider than radicle, or cylindrical.

About 175 species: North America, South America; three cultivated for ornament in China.

1a. Corolla red, violet, or pink, conspicuously narrowed at throat; stem copiously pubescent ........................................ 1. *C. elegans*

1b. Corolla white, green, yellow, or orange, not or scarcely narrowed at throat; stems glabrescent.

2a. Corolla pale yellowish or greenish white, subcylindric except near anthers; calyx less than 4 mm, ca. 4 mm in fruit

2b. Corolla yellow-orange, conspicuously expanded at apex; calyx more than 5 mm, ca. 6 mm in fruit

................................................................. 3. *C. aurantiacum*

1. **Cestrum elegans** (Brongniart) Schlechtendal, Linnaea 19: 261. 1847.

毛茎夜香树 mao jing ye xiang shu


Shrubs. Stem copiously pubescent. Petiole 6–12 mm; leaf blade ovate or elliptic, ca. 8 × 3 cm. Inflorescences erect, terminal or axillary, congested racemose panicles; bracts ovate, minutely tomentose, 4–5 mm. Flowers odorless. Pedicel ca. 1 mm. Calyx narrowly campanulate, 6–8 mm, glabrous, unribbed; teeth ca. 3 mm, ciliate. Corolla red, pink, or violet, ca. 2 cm, expanded upward, abruptly contracted at throat, glabrous; lobes deltoid, ca. 2 mm. Filaments glabrous, unappendaged, slightly bent at point of insertion. Fruitig calyx not splitting. Berry dark pink, globose, 0.8–1.3 cm. Seeds ca. 8.

Yunnan [native to Mexico]. Cultivated for ornament.


夜香树 ye xiang shu shu

Shrubs erect or sprawling, 1–3 m tall; young growth puberulent, glabrescent. Branches slender. Petiole 0.8–2 cm; leaf blade oblong-ovate or oblong-lanceolate, 6–15 × 2–4.5 cm, entire. Inflorescences drooping, many-flowered, axillary or terminal racemose panicles, 7–10 cm. Flowers strongly night scented. Pedicel 1–5 mm. Calyx campanulate, 2–3 cm, lobes deltoid, 0.5–0.8 mm. Corolla greenish or whitish yellow, 1.5–2.5 cm, tube slightly contracted at throat, lobes 3–4 mm. Filaments with dentate appendages, usually puberulent at point of insertion. Ovary ca. 1 mm. Berry white, juicy, oblong or globose, 6–10 × 4–10 mm. Seeds 1–5, ellipsoid, 3.5–4.5 mm.

Fujian, Guangdong, Guangxi, Yunnan [native to America, widely cultivated for ornament in tropical regions].


黄花夜香树 huang hua ye xiang shu

Shrubs, pubescent on young growth, glabrescent. Petiole 1–1.4 cm; leaf blade ovate or elliptic, 4–7 × 2–4 cm. Inflorescences erect, terminal or axillary racemose panicles; bracts deciduous, leaflike, to 7 mm. Pedicel ca. 1 mm. Calyx campanulate, ca. 6 mm, sometimes with 5 prominent longitudinal ribs; teeth ca. 1 mm, often somewhat unequal. Corolla golden yellow, 1.4–2 cm, gradually expanded upwards, glabrous, lobes 3–4 mm. Filaments denticulate, pubescent at point of insertion. Berry white, ovoid, 7–11 mm; persistent calyx often splitting. Seeds ca. 4.

Guangdong [native to Central America].

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烟草属 yan cao shu

Herbs, shrubs, or small trees; pubescence of simple and glandular hairs. Leaves petiolate or sessile, entire or subentire. Inflorescences paniculate, racemose, or reduced to solitary flowers; peduncle mostly erect; bracts mostly present. Flowers sometimes showy, mostly fragrant, zygomorphic, 4- or 5-merous, pedicellate. Calyx regular or irregular, tubular or tubular-campanulate, lobed. Corolla tubular, funnelform, or salverform; tube lobed to subentire. Stamens inserted below middle of corolla tube; filaments slender; anthers dehiscing longitudinally. Disc ringlike, nectariferous. Ovary 2-locular. Stigma 2-lobed. Fruitig calyx persistent, slightly inflated, partially or completely enveloping fruit. Fruit a dry capsule dehiscing by apical valves. Seeds numerous, minute; embryo erect or slightly bent; cotyledons linear.
About 95 species: Africa, Americas, Australia, and Oceania; three species are cultivated in China as drug plants or as ornamentals, at least one is naturalized.

1a. Shrubs glabrescent; leaves glaucous, subleathery, slender petiolate; corolla glabrous; filaments glabrous, subequal  
1b. Herbs glandular hairy; leaves membranous, often winging stem; corolla puberulent adaxially; filaments pubescent at base, 1 shorter than others.

2a. Petiole not winged; corolla tubular, greenish yellow, less than 2.5 cm; stamens included  2.  
2b. Petiole winged or leaves subsessile; corolla funnelform, pink or pale green, more than 3 cm; stamens exerted  

   常用名：
   - 光烟草  guang yan cao

   *Nicotiana glauca* var. *angustifolia* Comes; *N. glauca* var. *grandiflora* Comes.

   Shrubs or small trees 2–6 m tall, glabrescent. Petiole slender, 3–12 cm; leaf blade ovate, 5–25 cm, leathery, base obtuse to cordate, entire, apex obtuse or acute, glaucous, subleathery. Inflorescences many-flowered, lax panicles. Pedicel 3–12 mm. Calyx tubular, 1–1.5 cm; lobes deltate, acute, equal. Corolla yellow to red, tubular, 2.5–4.5 cm; lobes short. Stamens subequal, included. Capsules ellipsoid, 0.7–1.5 cm. Seeds brown, ca. 0.5 mm.

   Cultivated in China [native of Argentina].

   常用名：
   - 黄花烟草  huang hua yan cao

   *Nicotiana rustica* var. *angustifolia* Comes; *N. rustica* var. *grandiflora* Comes.

   Herbs annual, 40–60(–120) cm tall, with viscid, glandular hairs. Petiole 5–15 cm; leaf blade ovate, oblong, or lanceolate, 10–30 cm, membranous, glandular hairy, base cordate or rounded. Inflorescences many-flowered, compact to lax panicles. Pedicel 3–7 mm. Calyx cup-shaped, 7–12 mm; lobes deltate, unequal. Corolla greenish yellow, tubular; tube 1.2–2 cm; limb ca. 4 mm in diam.; lobes short, obtuse, apiculate. Stamens unequal. Capsules subglobose, 1–1.6 cm. Seeds brown, oblong, ca. 1 mm. Fl. Jul-Aug.

   Cultivated in Gansu, Guangdong, Guizhou, Qinghai, Shanxi, Sichuan, Xinjiang, Yunnan [native to South America].  
   Used for tobacco and as an insecticide.

   常用名：
   - 烟草  yan cao
   - *Nicotiana chinensis* Fischer ex Lehmann.

   Herbs viscid, annual or short-lived perennial, 0.7–2 m tall, glandular hairy overall. Leaves decurrent, winging stems; leaf blade ovate to elliptic or lanceolate, 30(–70) × 8–15(–30) cm, membranous, glandular hairy, base narrowed, nearly half clasping, apex acuminate. Inflorescences many-flowered, much-branched panicles. Pedicel 0.5–2 cm. Calyx tubular or tubular-campanulate, 2–2.5 cm; lobes deltate, acuminate, unequal. Corolla yellowish at base, yellowish, greenish, red, or pink distally, funnelform, 3.5–5 cm; limb 1–1.5 cm in diam., with acute unequal lobes. Stamens unequal, sometimes partly exerted. Capsules subglobose or ovoid. Seeds brown, rounded, ca. 0.5 mm in diam. Fl. summer, fr. autumn.

   Widely cultivated throughout China [native to South America].  
   Used for tobacco and as an insecticide, also medicinally for anaesthetic, inducing sweat, or vomiting.

   碧冬茄属  bi dong qie shu

   *Petunia violacea* var. *hybrida* J. D. Hooker, Bot. Mag. 64: t. 3556. 1837.

   Herbs annual, 30–60 cm tall, glandular hairy. Leaves petiolate, simple, entire. Flowers solitary, axillary, somewhat actinomorphic. Calyx tubular-campanulate, deeply 5-parted. Corolla funnelform or salverform, tube gradually inflated upwards; lobes short, rounded or short pointed. Stamens inserted in corolla tube, included; filaments slender; anthers dehiscing longitudinally; disc glandular, entire or lobed. Ovary 2-locular; stigma indistinctly 2-lobed; ovules numerous. Fruit a dry, 2-valved capsule. Seeds minute, subglobose or ovoid, reticulate-pitted; embryo slightly curved or erect.

   About three species: South America, one cultivated in China.

1. **Petunia hybrida** (J. D. Hooker) Vilmorin, Fl. Pleine Terre ed. 1: 615. 1863.  
   碧冬茄  bi dong qie

   *Petunia violacea* var. *hybrida* J. D. Hooker, Bot. Mag. 64: t. 3556. 1837.

   Herbs annual, 30–60 cm tall, glandular hairy. Leaves short petiolate or subsessile; leaf blade ovate, 3–8 × 1.5–4.5 cm, base cuneate, margin entire, apex acute. Pedicel 3–5 cm. Calyx deeply parted, 1–1.8 cm × 3.5 mm; lobes linear, 1–1.5 cm × 3.5 mm, obtuse. Corolla white, red, yellow, or purple, sometimes fragrant, funnelform, 5–7 cm, limb spreading. Style slightly exceeding stamens. Capsules conical, ca. 1 cm. Seeds subglobose, ca. 0.5 mm in diam.

   Ornamental plant of hybrid origin, cultivated worldwide.