

CANNABACEAE

大麻科 da ma ke

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Herbs, annual or perennial, erect or twining, dioecious or sometimes monoecious, often with cystoliths (a hard calcium carbonate structure at base of a hair). Stems furrowed or winged. Stipules free. Leaves alternate or opposite, palmately lobed or compound, sometimes simple. Male inflorescences a bracteate cymose panicle. Male flowers: pedicellate; sepals 5, free; petals absent; stamens 5, opposite sepals; filaments short; anthers 2-loculed, dehiscent by longitudinal slits. Female inflorescences a bracteate spicate cyme much reduced in *Cannabis*, pendent or erect. Female flowers: sessile; calyx appressed to ovary, membranous; petals absent; ovary 1-loculed; ovule solitary, pendulous from locule apex; style 2-parted, branches filiform. Fruit an achene, covered by persistent calyx; endosperm fleshy; embryo curved or spirally involute.

Two genera and four species: N Africa, Asia, Europe, North America; two genera and four species (one endemic) in China.

Because all the Chinese species in this family are cultivated and are often found naturalized in disturbed habitats, it is difficult to know the true wild distributions.

Cannabaceae has sometimes been included in Moraceae or Urticaceae but is now usually recognized as a distinct family. The subfamily Celtidoideae of Ulmaceae could possibly be included within Cannabaceae (see the discussion after the Ulmaceae family description).

Chang Siushih. 1998. Cannaboideae. In: Chang Siushih & Wu Chengyih, eds., Fl. Reipubl. Popularis Sin. 23(1): 220-224.

- 1a. Plants twining; stem with 6 ridges or wings; leaves opposite, palmately lobed or sometimes simple; stems, branchlets, and petioles with rigid 2-armed stalked hairs; female inflorescences pendent, conelike 1. *Humulus*
- 1b. Plants erect; stems furrowed but without 6 ridges or wings; leaves alternate or opposite on basal parts of plants, pinnately compound; stems, branchlets, and petioles scabrous but without rigid 2-armed stalked hairs; female inflorescences erect, not conelike 2. *Cannabis*

1. HUMULUS Linnaeus, Sp. Pl. 2: 1028. 1753.

葎草属 lü cao shu

Humulopsis Grudzinskaja.

Herbs, perennial or annual, twining, dioecious. Stems, branchlets, and petioles with rigid 2-armed stalked hairs. Stems coarse, 6-ridged or winged. Leaves opposite, well developed leaves ± cordate and 3-7(-9)-lobed, terminal leaves sometimes ± ovate and simple, abaxially with yellowish brown resinous glands and dots. Male inflorescences laxly paniculate. Male flowers: filaments straight in bud; female inflorescences a conelike spicate cyme; bracts imbricate, persistent and enlarged in fruit, margin entire. Female flowers: calyx thinly membranous, appressed to ovary, margin entire; ovary ± surrounded by appressed calyx; styles 2-branched; branches caducous. Achene broadly ovoid; calyx persistent, appressed to achene; pericarp crustaceous; embryo spirally involute; cotyledons narrow.

Three species: Asia, Europe, North America; three species (one endemic) in China.

- 1a. Leaf blade abaxially without rigid spinulose hairs on veins, adaxially with few or no cystolith hairs marginally when young; flowers 2 per bract at least in middle of inflorescence 1. *H. lupulus*
- 1b. Leaf blade abaxially with rigid spinulose hairs on veins, adaxially with cystolith hairs marginally when young; flowers 1 per bract.
 - 2a. Well developed leaves with 3 or 5 lobes but sometimes simple, adaxially usually densely pubescent; infructescences 2-9 cm; bracts and bracteoles 1.5-3 cm, lacking spinulose hairs 2. *H. yunnanensis*
 - 2b. Well developed leaves with (3 or)5-9 lobes, adaxially pubescent but not densely so; infructescences 0.5-1.5(-2) cm; bracts and bracteoles less than 1 cm, spinulose 3. *H. scandens*

1. *Humulus lupulus* Linnaeus, Sp. Pl. 2: 1028. 1753.

啤酒花 pi jiu hua

Plants perennial. Petiole usually shorter than leaf blade; leaf blade 3-5(-7)-lobed, sometimes simple, 4-11 × 4-8 cm, abaxially glabrous or with scattered soft pubescence but without rigid spinulose hairs on veins, adaxially with few or no cystolith hairs marginally when young, base cordate, margin

coarsely serrate, apex acute. Female flowers 2 per bract at least in middle of inflorescence; bracts imbricated into a globose spike. Infructescences globose, 3-4 cm in diam.; bracts ovoid, 1.5-2 cm, dry, membranous, apex acute. Achenes flat, included in bracts. Fl. autumn.

Gansu, N Sichuan, Xinjiang [N Africa, N and NE Asia, Europe, E North America].

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A number of different varieties is usually recognized (Small, Syst. Bot. 3: 37–76. 1978), with the populations in China represented by at least both *H. lupulus* var. *lupulus*, a predominantly European to C and SW Asian variety, and var. *cordifolius* (Miquel) Maximowicz, a predominantly Japanese variety. In addition, the populations in S Gansu and N Sichuan may possibly be another, distinct variety. Further study is needed to sort out the pattern of varietal occurrence in China, which is complicated by the introduction and escape of cultivated var. *lupulus* for commercial production of hops for beer.

This species is cultivated throughout China, especially in E Shandong (Qingdao) and Xinjiang. The flowers and infructescences are important ingredients for beer making. The female flowers and bracts are used medicinally.

2. *Humulus yunnanensis* Hu, Bull. Fan Mem. Inst. Biol. Bot. 7: 211. 1936.

滇葎草 dian lü cao

Plants perennials. Petiole 3–11 cm; leaf blade palmately 3- or 5-lobed, sometimes simple, 5–14 × 4–13 cm, abaxially with rigid spinulose hairs on veins, adaxially densely pubescent, base cordate, apex narrowly acuminate. Female inflorescences spicate, globose, 2–7 cm; bracts and bracteoles narrowly ovate, 1.5–3 cm, membranous, subglabrous, abaxially veins prominent. Flowers 1 per bract. Infructescences 2–9 cm. Achenes flat, included in bracts. Fl. autumn.

• Forests; 1200–2800. Yunnan.

3. *Humulus scandens* (Loureiro) Merrill, Trans. Amer. Philos. Soc., n.s., 24(2): 138. 1935.

葎草 lü cao

Antidesma scandens Loureiro, Fl. Cochinch. 1: 157. 1790; *Humulopsis scandens* (Loureiro) Grudzinskaja; *Humulus japonicus* Siebold & Zuccarini.

Plants annual. Petiole 5–10 cm; leaf blade palmately (3 or) 5–9-lobed, sometimes simple, 7–10 × 7–10 cm, papery, abaxially with rigid spinulose hairs on veins, adaxially pubescent but not densely so, base cordate; lobes ovate-triangular, margin serrate. Male inflorescences 15–25 cm. Male flowers: yellowish green. Female inflorescences ca. 0.5 in diam.; bracts ovoid, 7–10 mm, papery, spinulose, apex acuminate. Female flowers: 1 per bract inflorescence; ovary included by bracts; styles exerted from bracts. Infructescences 0.5–1.5(–2) cm. Achenes exerted from bracts when mature. Fl. spring to summer, fr. autumn.

Forest margins, wastelands, along streams. Anhui, Chongqing, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Japan, Korea, Vietnam; naturalized in Europe and E North America].

No type specimen could be found of *Antidesma scandens*. Merrill's transfer of this species to *Humulus* is based on Loureiro's cryptic description, and this synonymy has not been universally accepted. For this reason the species has been variously recognized as *H. scandens* or *H. japonicus* in recent treatments.

The whole plant is used medicinally and the seed oil is used to make soap.

2. CANNABIS Linnaeus, Sp. Pl. 2: 1027. 1753.

大麻属 da ma shu

Herbs, annual, erect, dioecious or sometimes monoecious. Stems furrowed. Leaves alternate or opposite basally on stem, palmately compound, basally with 5–11 leaflets, apically with 1–3 leaflets; leaflet margin serrate. Male inflorescences axillary or terminal, a lax panicle. Male flowers: sepals imbricate; filaments straight in bud; rudimentary pistil small. Female inflorescences axillary, in a rosette. Female flowers: bracteoles leaflike; calyx rudimentary, membranous, appressed to ovary; styles 2, linear, caducous. Achene solitary, surrounded by persistent calyx, enclosed by bracts; endosperm fleshy; embryo curved; cotyledon fleshy.

One or two species: originally from Asia, but now widely cultivated elsewhere; one species in China.

1. *Cannabis sativa* Linnaeus, Sp. Pl. 2: 1027. 1753.

大麻 da ma

Cannabis indica Lamarck; *C. sativa* var. *indica* (Lamarck) E. Small & Cronquist.

Plants 1–3 m tall. Branchlets densely white pubescent. Stipules linear. Leaves alternate; petiole 2–7 cm; leaf blade abaxially whitish green, strigose, and with scattered brownish resinous dots, adaxially dark green and with cystolith hairs; leaflets usually lanceolate to linear, (3–)7–15 × (0.2–)0.5–1.5(–2) cm with longest in middle, margin coarsely serrate, apex acuminate. Male inflorescences ca. 25 cm. Male flowers: yellowish green, nodding; pedicel 2–4 mm, thin; sepals ovate to lanceolate, 2.5–4 mm, membranous, with sparse prostrate hairs; petals absent; filament 0.5–1 mm; anthers oblong. Female inflorescences crowded in apical leaf axils among leaflike bracts and bracteoles. Female flowers: green, sessile; calyx sparsely

pubescent; ovary globose, ± enclosed by appressed calyx, surrounded closely by bract and bracteoles. Persistent bracts yellow. Achene flattened ovoid, 2–5 mm; pericarp crustaceous, finely reticulate. Fl. May–Jun, fr. Jul.

Cultivated throughout China, native or naturalized in Xinjiang [native or naturalized in Bhutan, India, and Sikkim; C Asia].

Cannabis sativa is probably originally native to Central Asia, but its long cultivation makes it difficult to know its exact original distribution. This long cultivation and human selection for different desirable characteristics has resulted in considerable variation, but separation of it into either several species or the recognition of several varieties is probably not justified beyond the level of cultivated forms. *Cannabis ruderalis* Janischewsky, from Russia, is considered by some to be a distinct species from *C. sativa*.

The long, strong fibers are used in the paper-making industry and for weaving cloth, the seeds are a source of oil, the leaves, flowers, and fruit are used medicinally, and the female inflorescences (particularly the glandular leafy bracts and bracteoles) are used as a drug.

CANNABACEAE