PHYTOLACCACEAE
商陆科  shang lu ke

Lu Dequan (鲁德全)  Kai Larsen

Herbs or shrubs, rarely trees, erect, rarely scandent, mostly glabrous, rarely dioecious. Leaves simple, alternate, entire; stipules absent or tiny. Inflorescences terminal, axillary, or leaf-opposed, racemose, cymose, panicled, or spicate. Flowers small, bisexual or rarely unisexual, actinomorphic, rarely zygomorphic. Tepals 4 or 5, persistent, free or connate at base, equal or unequal, imbricate in bud, green or sometimes other colored. Stamens 4 to many, inserted on a fleshy disk; filaments usually persistent, free or slightly connate at base; anthers 2-loculed, dorsifixed, longitudinally dehiscent. Ovary superior, globose; carpels 1 to many, free or connate; ovule solitary in each carpel, basal, campylotropous. Styles persistent, short or absent, erect or curved, as many as carpels. Fruit fleshy, a berry or drupe, rarely a capsule. Seeds reniform or oblate, small; testa membranous or hard and fragile, smooth or wrinkly; embryo large, curved, surrounding copious mealy endosperm.

Seventeen genera and ca. 70 species: widespread in tropical and temperate regions, especially in the neotropics and S Africa; two genera (one endemic, two introduced) in China.


商陆属  shang lu shu

Herbs or shrubs, rarely trees, erect, rarely scandent. Root usually thick, fleshy. Stems and branches terete, sulcate or angular, glabrous or young shoot and inflorescence pubescent. Leaves petiolate, rarely sessile; leaf blade ovate, elliptic, or lanceolate, apex acute or obtuse. Flowers pedicellate or sessile, in racemes, cymose panicles, or spikes, terminal or leaf-opposed. Tepals 5, persistent, spreading or reflexed, oblong to ovate, herbaceous or membranous, apiculate. Stamens 6–33, inserted at base of tepals; filaments subulate or linear, free or connate at base, included or exserted. Ovary subglobose, carpels 5–16, free or connate. Styles subulate. Fruit a fleshy berry, oblate. Seeds black, shiny, reniform, compressed; testa hard and fragile, smooth; tegument membranous.

About 25 species: nearly cosmopolitan, mostly native to South America, a few species in Africa and Asia; four species (one endemic, one introduced) in China.

1a. Inflorescence arching or pendulous; flowers loosely spaced; infructescence pendent ............................................. 4. P. americana
1b. Inflorescence erect; flowers densely spaced; infructescence erect.

2a. Seeds with slender concentric striations; carpels 6–10, connate ................................................................. 3. P. japonica
2b. Seeds smooth; carpels usually 8, distinct or connate.

3a. Carpels distinct; stamens 8–10; carpels usually green or white .................................................. 1. P. acinosa
3b. Carpels connate; stamens 12–16; carpels usually pink ........................................ 2. P. polyandra


商陆  shang lu

Phytolacca esculenta Van Houtte; P. pekinensis Hance.

Herbs perennial, glabrous, 0.5–1.5 m tall. Roots obconic, thick, fleshy. Stems erect, green or reddish purple, terete, longitudinally grooved, fleshy, branched. Petiole 1.5–3 cm; leaf blade elliptic or lanceolate-elliptic, 10–30 × 4.5–15 cm, papery, base cuneate, apex acuminate or sharply pointed. Racemes erect, terete, usually shorter than leaves, densely flowered; peduncle 1–4 cm. Pedicel 6–10(–13) mm. Flowers bisexual, ca. 8 mm in diam. Tepals 5, white or yellowish green, elliptic, ovate, or oblong, 3–4 × ca. 2 mm, equal, after anthesis reflexed. Stamens 8–10, ca. as long as tepals; filaments persistent, white, subulate, base broad; anthers pink, elliptic. Carpels usually 8, distinct. Styles erect, short, apex curved. Infructescence erect. Berry purplish black when mature, oblate, ca. 7 mm in diam. Seeds reniform, ca. 3 mm, 3-angulate, smooth. Fl. May–Aug, fr. Jun.–Oct. 2n = 18, 36*, 72.

Valleys, hillsides, forest understoreys, forest margins, roadsides, cultivated beside houses, moist fertile lands, or a weed; 500–3400 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Jiangsu, Liaoning, Shaanxi, Shandong, Sichuan, Taiwan, Xizang, Yun-nan, Zhejiang [Bhutan, India, Japan, Korea, Myanmar, Singapore, Vietnam].

This species is used medicinally.


多药商陆  duo yao shang lu

Phytolacca clavigera W. W. Smith.

Herbs (0.5–)1–1.5 m tall. Petiole 1–2 cm; leaf blade

1 Herbarium, Northwestern Institute of Botany, Yangling, Xianyang, Shaanxi 712100, People’s Republic of China (Lu Dequan died in 2002).
2 Herbarium Jutlandicum, Department of Systematic Botany, University of Aarhus, Building 137, Universitetsparken, DK-8000 Aarhus C, Denmark.
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elliptic-lanceolate or elliptic, 9–27 × 5–10.5 cm, glabrous, base cuneate, attenuate, apex acute or acuminate, with glandular sharp point. Racemes erect, terete, 5–32 × 1.8–4.5 cm; peduncle 1.5–6 cm. Pedicel 1–1.8 cm. Tepals 5, pink, oblong, 4–6 × ca. 2.5 mm. Stamens 12–16, bicyclic; filaments broadened at base; anthers white. Carpels (6–)8(or 9), connate. Styles erect or apex slightly curved, ca. 2.5 × as long as ovary. Berry ca. 7 mm in diam., becoming membranous, appressed to seeds. Fl. May–Aug, fr. Jun–Sep.

- Hillsides, forest understoreys, gullies, riversides, roadsides; 1100–3000 m. Gansu, Guangxi, Guizhou, Sichuan, Yunnan.

日本商陆 ri ben shang lu


Valleys, forest understoreys, riversides; 300–1100 m. Anhui, Fujian, Guangdong, Hunan, Jiangxi, Shandong, Taiwan, Zhejiang [Japan].

垂序商陆 chui xu shang lu

Phytolacca decandra Linnaeus.


Cultivated. Anhui, Fujian, Guangdong, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [native to North America; widely naturalized in Asia and Europe].

This species is used medicinally.

2. RIVINA Linnaeus, Sp. Pl. 1: 121. 1753.

数珠珊瑚属 shu zhu shan hu shu

Herbs or subshrubs. Stems erect, dichotomous, angulate, glabrous or pubescent. Leaves long petiolate; leaf blade ovate, base rounded or attenuate, apex acuminate. Racemes terminal or axillary, erect or curved, slender. Flowers bisexual, small. Tepals 4, persistent. Stamens 4. Ovary superior, ovoid, 1-carpelled, 1-loculed. Style shorter than ovary, slightly curved; stigma capitate. Berry red or orange.

One species: tropical and subtropical America; introduced in tropical regions elsewhere.


数珠珊瑚 shu zhu shan hu

Plants 30–100 cm tall. Branches spreading, pubescent when young. Leaves rather remote; petiole 1–3.5 cm, pubescent; leaf blade ovate or ovate-lanceolate, 4–12 × 1.5–4 cm, abaxially pubescent along midvein, adaxially glabrous, base attenuate, margin slightly serrulate, apex long acuminate. Racemes 4–10 cm (including peduncle), pubescent. Pedicel slender, with a bract and a pair of bracteoles. Tepals white or pink, elliptic or obovate-oblong, 2–2.5 mm, in fruit 3–3.5 mm, green, reflexed. Stamens shorter than and alternate with tepals. Berry globose or pyriform, 3–4 mm. Seeds ca. 2 mm. 2n = 126.

Cultivated, possibly escaped as a weed around houses or rubbish heaps. Fujian (Fuzhou), Guangdong (Guangzhou), Zhejiang (Hangzhou) [probably native to tropical America; now widespread in tropics and subtropics].

This species is cultivated as an ornamental.
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