PLATANACEAE

Trees deciduous (rarely semi-evergreen), monoeccious. Branches and leaves with branched or stellate tomentum; bark pale brown, gray, and/or white, smooth, exfoliating in plates. Terminal buds absent; lateral buds ovoid, slightly acute at apex, enclosed by a separate scale at base of petiole. Leaves alternate; stipules basally surrounding stem, deciduous; petiole long, usually enclosing axillary bud at base; leaf blade simple, large, usually palmately lobed and subpalmately veined, margin coarsely dentate. Flowering branchlets leafy only at base, pendulous at least in fruit; inflorescences 1–(5–12), globose-capitate, male and female ones homomorphic, borne on separate branchlets. Male flowers: sepals 3–8, triangular, pubescent; petals as many as sepals, oblanceolate; stamens 3–8; filaments short; anther connective enlarging into a peltate scale. Female flowers: carpels 3–8, free; ovary long ovoid, 1-locular; ovules 1 or 2, anatropous; style elongate, persistent and exserted from inflorescence. Infructescence a capitate or globose coenocarpium composed of numerous achenes. Achenes narrow and long obconical, 1-seeded, base usually with a tuft of villous hairs, apex with persistent style; style and hairs often exserted from infructescence. Seeds linear; endosperm thin; cotyledons heteromorphic.

One genus and 8–11 species: Central and North America, SW Asia, SE Europe, one species in SE Asia (Laos and N Vietnam); widely cultivated elsewhere; three species (introduced) in China.

Hoot et al. (Ann. Missouri Bot. Gard. 86: 1–32. 1999) treated Platanaceae and Proteaceae as well-supported sister taxa forming a less well supported clade with Nelumbonaceae.


PLATANUS

Morphological characters and geographical distribution are the same as those of the family.

All three species in China are cultivated, usually as street trees. However, it is possible that Platanus kerrii Gagnepain (Bull. Soc. Bot. France 86: 301. 1939), described from Laos and also recorded from several places in N Vietnam, may yet be found as a wild plant in China (in SW Guangxi or S Yunnan). In this species, the stipules are very small, the petiole base does not enclose the axillary bud, the leaf blade is long elliptic and pinnately veined, with an entire margin, and the fruiting branchlets each have 8–12 rather small infructescences.

1a. Fruitng branchlets with (2 or)3–5 infructescences; central leaf lobe longer than wide; stipules less than 1 cm; flowers 4-merous; basal hairs of achenes exserted from infructescence ..........................  1. P. orientalis

1b. Fruitng branchlets with 1 or 2(3) infructescences; central leaf lobe not longer than wide; stipules 1–3 cm; flowers 4–6-merous; basal hairs of achenes not exserted from infructescence.

2a. Stipules 1–1.5 cm; leaf blade (3 or)5(or 7)-lobed; flowers usually 4-merous; fruiting branchlets with (1 or)2(or 3) infructescences .................................................................  2. P. acerifolia

2b. Stipules bugle-shaped, 2–3 cm; leaf blade 3(or 5)-lobed; flowers 4–6-merous; fruiting branchlets with 1(0 or)2 infructescences .................................................................  3. P. occidentalis


Platanus orientalis

Trees deciduous, to 30 m tall. Young branchlets yellow-brown tomentose, old ones glabrous, becoming red-brown after drying, small lenticellate. Stipules less than 1 cm; petiole terete, 3–8 cm, tomentose; leaf blade broadly ovate, 9–18 × 8–16 cm, deeply (3 or)5- or 7-lobed, both surfaces gray-yellow pubescent at first, glabrate and then pubescent only along veins abaxially, principal veins 3 or 5, arising from base, base shallowly cordate or subtruncate; central lobe 7–9 × 4–6 cm, margin lobed; lateral lobes shorter, margin coarsely dentate. Flowers 4-merous. Male flowers: sepals short, small; stamens much longer than petals; filaments very short; anthers elongate. Female flowers: sepals pubescent; petals oblanceolate; carpels 4; styles elongate, apex crispate. Fruiting branchlets with (2 or)3–5 infructescences. Infructescence capitulate, 2–2.5 cm in diam. Achenes with persistent style spiniform, 3–4 mm; basal hairs yellow; both styles and hairs exserted from infructescence. Fl. Mar–May, fr. Jun–Oct.

Cultivated in China [native to SW Asia and SE Europe].

Platanus orientalis Linnaeus var. acerifolia Aiton, Hort. Kew. 3: 364. 1789; P. hybrida Brotero.

Trees deciduous, to 30 m tall. Young branchlets densely

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PLATANACEAE

gray-yellow tomentose, old ones red-brown, glabrous. Stipules 1–1.5 cm; petiole 3–10 cm, densely yellow-brown pubescent; leaf blade broadly ovate, 12–25 × 10–24 cm, (3 or)5(or 7)-lobed, gray-yellow pubescent on both surfaces when young, glabrate and then pubescent only at vein axils abaxially, principal veins 3(or 5), arising from base or lateral 2(or 4) from mid-vein above base, base subcordate or truncate; lobes entire or coarsely 1- or 2-dentate at margin; central lobe broadly triangular, as long as wide. Flowers usually 4-merous. Male flowers: sepals ovate, pubescent; petals oblong, ca. 2 × as long as sepals; stamens longer than petals; anther connective peltate, pubescent. Fruiting branchlets with (1 or)2(or 3) infructescences. Infructescence capitate, ca. 2.5 cm in diam. Achenes with persistent style spiniform, 2–3 mm; basal hairs absent or very short, not exserted from infructescence. Fl. Mar–May, fr. Jun–Oct.

Cultivated in C, NE, and S China [of cultivated origin in SW Asia or Europe].

This widely planted tree is either a hybrid between Platanus occidentalis and P. orientalis or a cultivar of P. orientalis; the origin has been much discussed but remains uncertain.

悬铃木 xuan ling mu

Trees deciduous, to 40 m tall. Young branchlets yellow-brown tomentose. Stipules 2–3 cm, bugle-shaped, deciduous; petiole 4–7 cm, densely tomentose; leaf blade broadly ovate, 8–20 × 10–22 cm, 3(or 5)-lobed, gray-yellow tomentose on both surfaces at first, soon glabrate and then pubescent only along veins abaxially, principal veins 3, lateral 2 arising from midvein ca. 1 cm above base, base broadly cordate, truncate, or sub-cuneate; lobes shortly triangular, margin coarsely numerous dentate. Flowers 4–6-merous. Male flowers: sepals and petals short, small; filaments very short; anthers peltate, elongate; connective glabrous. Female flowers: long tomentose at base; sepals short, small; petals 4–5 × as long as sepals; carpels 4–6; styles elongate, longer than petals. Fruiting branchlets with 1(or 2) infructescences. Infructescence globose, ca. 3 cm in diam. Achenes obtuse at apex, with persistent style very short; basal hairs ca. 1/2 as long as achene, not exserted from infructescence. Fl. Mar–May, fr. Jun–Oct.

Cultivated in C and N China [native to North America].