

10. PHELLODENDRON Ruprecht, Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Pétersbourg 15: 353. 1857.

黄檗属 huang bo shu

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Trees, deciduous, dioecious. Bark corky, fissured and gray or grayish brown at maturity; inner bark (phloem) yellow. Branchlets dark purplish. Leaves opposite, odd-pinnate; base of petiole excavated, concealing axillary bud; leaflet blades with oil glands restricted to margin, margin subentire to minutely crenulate or serrulate. Inflorescences terminal, thyriform. Sepals 5(–8), connate at base. Petals 5(–8), narrowly imbricate in bud. Stamens 5(–7), distinct. Disk columnar. Male flowers: stamens to $1.5 \times$ as long as petals; gynoeceum rudimentary, of 5(or 6) fingerlike carpels, basally connate, apically \pm divergent. Female flowers: stamens rudimentary, ligulate, much shorter than petals; gynoeceum 5(–10)-loculed, syncarpous; ovules 1 per locule; stigma peltate. Fruit a drupaceous berry, black or purplish black, 5(–10)-loculed; exocarp fleshy; mesocarp undifferentiated; endocarp thinly cartilaginous. Seeds brown or black, asymmetrically ellipsoid, dull, inconspicuously rugulose; seed coat with inner layer of dense black sclerenchyma and outer layer of compact parenchymatous tissue; endosperm \pm scant; embryo straight; cotyledons elliptic, flattened; hypocotyl superior.

Two to four species: E and SE Asia; two species (one endemic) in China.

- 1a. Inflorescences and infructescences \pm lax, rachis, branches, and pedicels slender; leaflet blades papery to thinly papery 1. *P. amurense*
1b. Inflorescences and infructescences \pm compact, rachis, branches, and pedicels robust; leaflet blades papery 2. *P. chinense*

1. Phellodendron amurense Ruprecht, Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Pétersbourg 15: 353. 1857.

黄檗 huang bo

Trees 10–30 m tall, d.b.h. to 1 m. Leaves 7–13-foliolate; rachis glabrous to pubescent; leaflet blades ovate to ovate-lanceolate, $6-12 \times 2.5-4.5$ cm, papery to thinly papery, apex acuminate. Inflorescences and infructescences \pm lax, rachis, branches, and pedicels slender. Fruit globose, ca. 1 cm in diam. Seeds ca. 6×3 mm. Fl. May–Jun, fr. Sep–Oct.

Montane forests and thickets, river valleys. Anhui, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Shandong, Shanxi, Taiwan [Japan, Korea, Russia (Far East)].

This species is widely cultivated.

Phellodendron amurense var. *wilsonii* was accepted by C. E. Chang (Fl. Taiwan, ed. 2, 3: 527. 1993).

2. Phellodendron chinense C. K. Schneider, Ill. Handb. Laubholz. 2: 126. 1907.

川黄檗 chuan huang bo

Trees to 15 m tall. Leaves 7–15-foliolate; rachis glabrous, thinly pubescent, or rust-colored tomentose; leaflet blades ovate-elliptic to oblong-lanceolate, $8-15 \times 3.5-6$ cm, papery, base cuneate to attenuate and oblique, apex mucronate to acuminate. Inflorescences and infructescence \pm compact, rachis, branches, and pedicels robust. Fruit subglobose to ellipsoid, 1–1.5 cm in diam. Seeds $6-7 \times 3-5$ mm. Fl. May–Jun, fr. Sep–Nov.

- Mixed broad-leaved forests, open to dense forests; 800–1500

(–3000) m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Shaanxi, Sichuan, Yunnan, Zhejiang.

- 1a. Rachis of leaves rust-colored tomentose 2a. var. *chinense*
1b. Rachis of leaves glabrous or thinly pubescent 2b. var. *glabriusculum*

2a. Phellodendron chinense var. *chinense*

川黄檗(原变种) chuan huang bo (yuan bian zhong)

Phellodendron fargesii Dode; *P. macrophyllum* Dode, p.p. as to *R. P. Farges 1284* p.p. altitude 1400 m (see also synonymy of *Tetradium daniellii*).

Rachis of leaves rust-colored tomentose.

- Mixed broad-leaved forests; above 900 m. Anhui, Henan, Hubei, Hunan, Sichuan, Yunnan.

2b. Phellodendron chinense var. *glabriusculum* C. K. Schneider, Ill. Handb. Laubholz. 2: 126. 1907.

秃叶黄檗 tu ye huang bo

Phellodendron chinense var. *falcatum* C. C. Huang; *P. chinense* var. *omeiense* C. C. Huang; *P. chinense* var. *yunnanense* C. C. Huang.

Rachis of leaves glabrous or thinly pubescent.

- Open to dense forests; 800–1500(–3000) m. Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Shaanxi, Sichuan, Yunnan, Zhejiang.

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