

2. THUJA Linnaeus, Sp. Pl. 2: 1002. 1753.

崖柏属 ya bai shu

Trees or shrubs evergreen, monoecious; branchlets arranged in a plane, flattened. Leaves 4-ranked, scalelike, base decurrent only on leading branchlets, dimorphic along branchlets: facial pairs obovate-rhombic; lateral pairs boat-shaped, ridged abaxially, less than 4 mm, overlapping facial pairs, without conspicuous, white stomatal bands abaxially. Pollen cones with (4 or)6–10(–16) microsporophylls, each with (2 or)3 or 4 pollen sacs. Seed cones terminal, solitary, dehiscent when mature in 1st year; cone scales 8 or 10, decussate, flat, only middle, larger 2 or 3 pairs fertile, each fertile scale bearing 1 or 2 seeds; free bract apex a very short mucro. Seeds flat, with 2 lateral, narrow wings. Cotyledons 2.

Five species: E Asia, E and W North America; five species (one endemic, three introduced) in China.

- 1a. Leaves obtuse at apex, rarely subacute.
 - 2a. Facial leaves without a gland; young branchlets not glaucous 1. *T. sutchuenensis*
 - 2b. Facial leaves with a gland; young branchlets ± glaucous 2. *T. koraiensis*
- 1b. Leaves subacute to acuminate at apex.
 - 3a. Leaves acuminate at apex; lateral leaves longer than facial leaves, apex straight 3. *T. plicata*
 - 3b. Leaves acute or subacute at apex, lateral leaves slightly shorter than or as long as facial leaves, apex incurved.
 - 4a. Facial leaves with a conspicuous abaxial gland 4. *T. occidentalis*
 - 4b. Facial leaves without a gland 5. *T. standishii*

1. *Thuja sutchuenensis* Franchet, J. Bot. (Morot) 13: 262. 1899.

崖柏 ya bai

Shrubs or trees to 20 m tall; bark orange-brown when young, turning gray-brown, thin, soon flaking; branches spreading, densely arranged; branchlets not glaucous. Facial leaves 1.5–4 × 1–1.5 mm (to 7 mm on leading branchlets), abaxial gland absent, apex obtuse; lateral leaves of ultimate branchlets slightly shorter than facial leaves, 0.8–1 mm wide, apex incurved. Pollen cones yellowish, subglobose, ca. 2.5 mm; microsporophylls 6–8, each with (2 or)3 pollen sacs. Seed cones ellipsoid, 5–7 × 3–4 mm; fertile cone scales 4. Seeds ovoid-oblong, ca. 3.5 mm; wings 0.5 mm wide, apex acute.

• Probably now extinct in the wild owing to forest clearance; recorded at 1400 m. NE Sichuan (Chengkou Xian).

Not collected in the wild since the original gatherings from the only known locality by P. G. Farges in 1892 and 1900. Repeated searches for the species have been unsuccessful.

2. *Thuja koraiensis* Nakai, Bot. Mag. (Tokyo) 33: 196. 1919.

朝鲜崖柏 chao xian ya bai

Shrubs (when on mountain ridges), or small trees to 10 m tall; trunk to 80 cm d.b.h.; bark reddish brown and smooth when young, grayish brown and fissured when old, soon flaking; branches ascending or spreading; young branchlets ± glaucous, soon becoming green. Facial leaves 1–2 mm, to 15 mm on leading branchlets, abaxial gland near base, apex obtuse; lateral leaves as long as or shorter than facial leaves, apex incurved. Pollen cones purplish, subglobose, 2–3 mm; microsporophylls 6–10, each with 3 or 4 pollen sacs. Seed cones dark brown when ripe, ellipsoid-globose, 7–10 × 6–8 mm; basal pair of cone scales subellipsoid, middle pairs suboblong, apical pair long and narrow. Seeds

ellipsoid, flattened, ca. 4 × 1.5 mm; wings 1–1.5 mm wide. Pollination May, seed maturity Sep.

Valleys, slopes, mountain ridges; 700–1800 m. S Jilin (Changbai Shan) [Korea].

A vulnerable species in China.

3. *Thuja plicata* Donn ex D. Don in Lambert, Descr. Pinus 2: [19]. 1824.

北美乔柏 bei mei qiao bai

Thuja gigantea Nuttall.

Trees to 50(–75) m tall; trunk to 2(–5) m d.b.h., often buttressed at base; bark reddish brown or grayish brown, fibrous, fissured; crown conical; branches arching; branchlets pendulous. Leaves on upper side of branchlets glossy green, (1–)3–6 mm, apex acuminate; lateral leaves longer than facial leaves, apex straight. Pollen cones reddish, 1–3 mm. Seed cones brown, ellipsoid, 1–1.4 cm; fertile cone scales 4–6. Seeds reddish-brown, 4–7.5 mm (including wings).

Cultivated. Jiangsu, Jiangxi [native to W Canada, NW United States].

4. *Thuja occidentalis* Linnaeus, Sp. Pl. 2: 1002. 1753.

北美香柏 bei mei xiang bai

Thuja obtusa Moench; *T. theophrasti* C. Bauhin ex Nieuwland.

Trees to 15(–38) m tall; trunk 0.9(–1.8) m d.b.h.; bark reddish brown or grayish brown, fibrous, fissured; crown conical. Leaves on both sides of branchlets dull yellowish-green; facial leaves (1.5–)3–5 mm, abaxial gland conspicuous, apex acute; lateral leaves slightly shorter than or as long as facial leaves, apex incurved. Pollen cones reddish, 1–2 mm. Seed cones brown, ellipsoid, (0.6–)0.9–1.4 cm; fertile cone scales ca. 4. Seeds reddish-brown, 4–7 mm including wings.

Flora of China 4: 63–64. 1999.

Planted for timber. Anhui, Guizhou, Hebei, Henan, Hubei, Jiangsu, Jiangxi, Shandong, Sichuan, Zhejiang [native to E Canada, NE United States].

5. *Thuja standishii* (Gordon) Carrière, *Traité Gén. Conif.*, ed. 2, 1: 108. 1867.

日本香柏 ri ben xiang bai

Thujopsis standishii Gordon, *Pinetum Suppl.* 100. 1862;
Thuja gigantea Nuttall var. *japonica* (Maximowicz)
Franchet & Savatier; *T. japonica* Maximowicz.

Trees to 18 m tall; bark reddish brown; crown broadly pyramidal; branches spreading; branchlets thick, flattened, 1.5–2.5 mm wide. Leaves deep green, facial leaves without abaxial gland, apex subacute; lateral leaves slightly shorter than or as long as facial leaves, apex incurved. Seed cones deep brown, obovoid, 8–10 mm; cone scales 10–12, middle 4–6 scales fertile, each with 3 seeds. Seeds 5–6 mm; wings 6–7 × 2–2.5 mm. Cultivated. Jiangsu, Jiangxi, Shandong, Zhejiang [native to Japan].

