

Cinnamomum camphora

kapur, camphora tree

LOCAL NAMES

Chinese (Xiang-zhang,Zhang-shu); Creole (kafm,bom zangle); Dutch (Kamferboom); English (camphor tree,camphor laurel,Japanese camphor); French (camphrier,camphre,baume anglais,Arbre a camphre); German (Kampferbaum); Hindi (karpuram,karpur); Italian (canfora,confora (albero)); Japanese (kkusu-no-ki,kuso-no ki,hon-sho); Nepali (kapur); Portuguese (Alcanforeira); Spanish (alcanfor,alcanforero,alcanfor del Japón); Swahili (mkafuri maita); Swedish (Kamfertraed); Tamil (karpurammu); Trade name (camphora tree,kapur)

BOTANIC DESCRIPTION

Cinnamomum camphora is a small, glabrous tree, up to 40 m tall with a diameter of up to 3 m. The bark is yellow or brown with vertical fissures.

Leaves alternate, simple, with 3 to several distinct nerves and penninerved with stout dormant buds enclosed in large, silky orbicular concave, imbricating caducous scales and a strong smell of camphor when crushed.

Flowers bisexual, in lax axillary, terminal panicles on the ends of the twigs, creamy white in colour, hermaphroditic, actinomorphic; ovary 1, locular; ovule 1, pendulous or basal; stamens definite, free; anthers opening by valves or slits; embryo minute.

The fruit is a round, one-seeded, fleshy drupe, 7-8 mm wide, purple-black at maturity.

The etymology of *C. camphora* is derived from the Greek word 'kinnamomon' (meaning spice). The Greeks borrowed the word from the Phoenicians, indicating that they traded with the East from early times. Cinnamon is recorded in Sanskrit, the Old Testament, and in Greek medicinal works, and was used by Egyptians as early 1485 BC for embalming purposes.

BIOLOGY

C. camphora flowers are hermaphroditic. The fruit turns black when ripe. In China and India it flowers in April-May, and the fruit ripens in October-November. In Nepal fruiting occurs September-November. In Vietnam flowering is in April-May and fruiting in November - January. Collection can normally start when the tree is 15 years old.

Nees.

Lauraceae



A medium to large sized evergreen tree with short trunk branching low down. Crown dome-shaped, foliage dense and light green. A native of China and East Asia. Commonly grown as an ornamental and shade tree in South Africa but invasive in coastal bush, forest margins and river banks. (Ellis RP)



Leaves alternate, simple, entire margined, ovate to elliptic and prominently 3-veined near the base. Smelling of camphor when bruised. Flowers in panicles, very small and greenish-white. Appear in spring. (Ellis RP)



Bark thick, rough, deeply longitudinally fissured and cracked into a grid-like pattern. Wood distilled to extract natural camphor with antiseptic, rubefacient and analgesic properties. Bark now used in traditional African medicine for colds, fever, flu and stomach pains. (Ellis RP)

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ECOLOGY

C. camphora occurs throughout much of Southeast Asia, but its exact distribution and abundance are not known with any certainty. Large areas of wild trees once grew in Japan and Taiwan, but these largely disappeared through over-exploitation for camphor production in the years up to World War II.

BIOPHYSICAL LIMITS

Altitude: Up to 1350-1800 m, Mean annual temperature: 14-27 deg. C, Mean annual rainfall: 640-4030 mm

Soil type: It is reported to grow well on fertile, well-drained, sandy loam soils but does not perform well on heavy soils with impeded drainage. Tolerates saline soils and salt winds. Light demanding.

DOCUMENTED SPECIES DISTRIBUTION

Native: China, India, Japan, Sri Lanka, Taiwan, Province of China

Exotic: Cuba, Dominican Republic, Ghana, Haiti, Nepal, Puerto Rico, Vietnam



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

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PRODUCTS

Timber: The sapwood is whitish or brownish, and the heartwood brownish-yellow with a green cast, or olive to light olive-brown to blackish-brown, with a medium to coarse texture, satiny or silky lustre, straight and often rosy grain, spicy odour, and excellent working qualities.

Essential oil: Fractionation of the camphor-free oil obtained from *C. camphora* provides an oil rich in safrole (80% or more), usually called Chinese sassafras oil. *C. camphora* is a well-known chemotype; on distillation, the wood from different groups of trees may yield camphor, linalool, safrole or cineole as the major chemical. The use of *C. camphora* as a source of leaf oil has expanded in recent years, and it is now an important source of natural linalool (which is still preferred over the synthetic form for some fragrant applications). The crude oil obtained by primary distillation of the chipped wood is fractionated to remove camphor and provide safrole-rich oil.

A large proportion of the world's camphor is now produced synthetically from pinene, a turpentine derivative, or from coal tar. Camphor is used in the manufacture of celluloid, in disinfectants and chemical preparations and has a wide range of medicinal uses. Safrole, produced from the residual oil after camphor extraction, is used in soap and perfume manufacture.

SERVICES

Ornamental: In some countries such as Nepal, the tree is not planted for camphor production, but is mainly planted in gardens and at the entrances of houses for religious reasons, and as an ornamental tree, though the wood is valuable.

Intercropping: In China, intercropping with agricultural crops is practised at the seedling stage.

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TREE MANAGEMENT

Although yields of *C. camphora* are greater for old trees, leaves and woody material can be harvested regularly from plants over 5 years of age, which are kept in a bushy form by coppicing. The Chinese practice this form of harvesting.

In China and India intensive site-preparation before planting out is common practice. It involves ploughing soil to a depth of 30 cm and digging individual planting holes 60 x 60 x 50 cm. Planting dates depend on the region. In China, stock is planted from January to March, in Tamil Nadu, India, in January-February. In other parts of India it is planted after the monsoon has set in. The planting age of seedlings depends on the region, site and purpose. Spacing is generally 2 x 2 m or 1.8 x 3.5 m.

GERMPLASM MANAGEMENT

Seed storage behaviour is orthodox. Dry seeds can be stored, but longevity is short (12 months) at ambient temperature. There is little loss in viability after 12 months in moist storage at 5 deg. C with about 34% mc. P50 = 250 days when stored 1st at 25 deg. C with 80-91% r.h. for 2 weeks, then at 4 deg. C with 80% r.h. There are approximately 6600-10 000 seeds/kg.

This species has been classified as minimally recalcitrant, but no evidence of desiccation sensitivity is given. The fact that seeds can be stored dry at ambient temperatures for 6 months (resulting in 25% germination, compared with 55% germination before storage) suggests that they are not recalcitrant.

After harvest the fruits are afterripened in the shade for 2-3 days. The pulp is removed after the fruits have been soaked in water for 12-16 hours. It is important that the seeds (pyrenes) are dried in the shade to avoid desiccation damage. 3-4 kg fruits yield 1 kg of seed.

PESTS AND DISEASES

C. camphora suffers from leaf blight caused by *Glomevella cingulata*, but which can be controlled to some extent by spraying with Difolatan and Benlate.

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SUGGESTED CITATION

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