UNIVERSITY OF COPENHAGEN

Københavns Universitet

Cinnamomum camphora

Jøker, Dorthe

Published in:
Seed Leaflet

Publication date:
2000

Document version
Publisher's PDF, also known as Version of record

Citation for published version (APA):
Jøker, D. (2000). Cinnamomum camphora. *Seed Leaflet*, (23).

Download date: 13. Nov. 2026

SEED LEAFLET

No. 23 September 2000

Cinnamomum camphora (L.) J. Presl

Taxonomy and nomenclature

Family: Lauraceae

Synonyms: *Camphora officinarum* Nees, *Laurus camphora* L.

Vernacular/common names: camphor tree (Eng.); camphrier, baume anglais (Fr.); kampferbaum (Germ.); alcanfor (Sp.); long nao (Vietnam); kapur (trade name).

Distribution and habitat

Natural distribution is obscure, but it is probably native to China, Vietnam, Korea and Japan. Extensively cultivated in Asia and also planted in Africa, North America and Australia. Optimal growth is archieved in areas with annual rainfall of more than 1000 mm, uniform rainfall distribution and mean annual temperature above 16ºC.

When past the seedling stage, it can survive temperatures down to -9ºC. Grows 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.

Foliage and fruits. From: Vietnam Forest Trees.

Uses

A fast-growing tree with high-quality wood. The wood is heavy, moderately strong and resistant to insect damage and decay. It was previously an important source for camphor, which is now produced synthetically. In Asia it is often planted as an ornamental, and in China intercropping with agricultural crops is practised at the seedling stage.

Botanical description

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 a strong smell of camphor when crushed. Flowers bisexual, creamy white, in lax terminal panicles.

Fruit and seed description

The fruit is a round, one-seeded, fleshy drupe, 7-8 mm wide, purple-black at maturity. There are 9,000-10,000 seeds/kg.

Flowering and fruiting habit

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.

Harvest

The fruits are harvested when they turn purple-black. The seed coat should be hard and the endosperm white and firm.

Processing and handling

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.

Storage and viability

In general the seed does not store well and should be sown immediately after harvest if possible. The seeds have been wrongly classified as recalcitrant; they tolerate desiccation and temperatures down to at least 5°C.

But even though the seeds are desiccation tolerant, moist storage seems to be best. It has been recommended to store the seed at moisture content about 34% in moist sand in a cold, well ventilated place. At ambient temperature 6 months of storage can be expected, and at 5ºC 12 months with little loss of viability.

Recent studies from Taiwan showed that the seed can be dried down to 7%. At this moisture content the seed still germinated 60% after 12 months of storage at both 5 and 15°C.

Dormancy and pre-treatment

The seeds are dormant but the cause of dormancy is unclear. It is common practice to soak the seeds in 45ºC hot water for 24 hours just before sowing to increase germination. There are some indications that the dormancy is caused by the seedcoat preventing uptake of oxygen. Treatment with H_2O_2 to increase air permeability has shown to have an effect but further research is needed. In Taiwan the best pretreatment was found to be a combination of 4 months' cold stratification at 5ºC in moist spaghnum and 25 minutes' treatment with 15% H_2O_2 .

Sowing and germination

Germination can be rather slow and may continue up to one year after sowing. Propagation by seed is the normal practice, but branch cuttings, root cuttings and root suckers are also possible.

The seeds are sown in beds or trays during late winter to early spring and covered with 1 cm soil. The nursery bed should be kept free from weeds and watered regularly. The soil in the beds should be loosened at regular intervals when the seedlings begin to appear. During the first rainy season or early autumn, the seedlings should be thinned to a spacing of 10-15 cm x 20-25 cm.

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.

Selected readings

Chenglin, W. and Beibei, S. 1987. *Preliminary studies on dormancy and germination of camphor tree seeds.* IUFRO Report No. 7. Proc. Int. Symp. on Forest Seed Problems in Africa. Harare, Zimbabwe.

Chien, C.T. and Lin, T. 1999. *Effects of moisture content and temperature on the storage and germination of Cinnamomum camphora seeds.* Seed Sci. & Technol. 27:1, 315-320

Chien, C. T. and Lin, T. 1994. *Mechanism of hydrogen peroxide in improving the germination of Cinnamomum camphora seed*. Seed Sci. & Technol. 22: 2, 231-236.

FAO, 1955. *Tree Seed Notes. FAO Forestry Development Paper. No. 5*. Rome, Italy: FAO

Forest Inventory and Planning Institute 1996. *Vietnam Forest Trees*. Agric. Publ. House, Hanoi.

Gupta, R.K., 1993. *Multipurpose trees for agroforestry and wasteland utilization*. New Delhi, India: Oxford & IBH.

Hong, T.D., Linington, S. and Ellis, R.H. 1996. *Seed Storage Behaviour*: a compendium. Handbook for Genebanks No.4. IPGRI

Jackson, J.K, 1987. *Manual of Afforestation in Nepal*. Nepal-United Kingdom Forestry Research Project.

Plantation of *C. camphora*. Photo: Li Jiyuan.

THIS NOTE WAS PREPARED BY
DANIDA FOREST SEED CENTRE

Author: Dorthe Jøker

Danida Forest Seed Centre
Krogerupvej 21
DK-3050 Humlebaek
Denmark

Phone: +45-49190500
Fax: +45-49160258
Email: dfsc@sns.dk
Website: www.dfsc.dk