

Cinnamomum camphorum



Species identity

Taxonomy

Current name: *Cinnamomum camphora*

Authority: Nees.

Family: Lauraceae

Synonym(s)

Cinnamomum camphora Presl.

Common names

(Creole) : bom zangle, kafm

(English) : camphor laurel, camphor tree

(French) : baume anglais, camphre, camphrier

(Hindi) : karpur, karpuram

(Nepali) : kapur

(Spanish) : alcanfor, alcanfor del Japón

(Swahili) : mkafuri maita

(Tamil) : karpurammu

Botanic description

Cinnamomum camphora is a small, glabrous tree. Leaves alternate and penninerved with stout dormant buds enclosed in large, silky orbicular concave, imbricating caducous scales. Flowers 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 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.

Ecology and distribution

History of cultivation

C. camphora is a native of China, Japan and Taiwan but has been widely planted elsewhere. It was heavily exploited as a source of camphor in Japan and Taiwan until World War II. Trees were felled, and logs, stumps and branches distilled to produce crystalline camphor and camphor oil. The species was introduced into India during the 1950s. The availability of cheap, synthetic camphor (ex turpentine), however, has meant that there is now only modest international demand for the natural form.

Natural Habitat

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.

Geographic distribution

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

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

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.

Reproductive Biology

C. camphora flowers are hermaphroditic. The fruit ripens between September and November; it turns black when ripe.

Propagation and management

Propagation methods

C. camphora can be raised from seeds, layers, branch cuttings, root cuttings and root suckers. Propagation by seed, however, is the normal practice. After the pulp has been removed from the fruit, the seed should be sown immediately in beds or trays. The germination rate of fresh seed is about 50%, falling to 25% for seed 6 months old, and 0 for those 1 year old. Soaking seeds for 24 hours in lukewarm water hastens germination.

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.

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.

Functional uses

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.

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.

Bibliography

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Cinnamomum camphora

Common name:	Camphor	Family:	Lauraceae
Author:	(L.) Sieb.	Botanical references:	11, 109, 200
Synonyms:	Laurus camphora (L.)		
Known Hazards:	The plant is poisonous in large quantities [4]. Large doses can cause respiratory failure in children [268]. See the report below on medicinal uses for more information.		
Range:	E. Asia - China, Japan.		
Habitat:	Banks of streams in China [109], to elevations of 750 metres [268].		
Plants For A Future Rating (1-5):	3		

Other Possible Synonyms:	From various places across the web, may not be correct. See below .
	Camphora camphora [B,P]
Other Common Names:	From various places around the Web, may not be correct. See below .
	Camphor [H,S], Camphor Tree [H], Camphora [E], Camphortree [P,B], Chang [E], Kafur [E], Kusu-No-Ki [E],
Epithets:	From a Dictionary of Botanical Epithets
	amomum = a balsam spice plant;
Other Range Info:	From the Ethnobotany Database
	China; Cuba; Italy; Nepal; Turkey
Noxious, Invasive and Injurious Weeds	From UDSA PLANTS database , Weeds Australia , DEFRA Injurious Weeds
	Listed as noxious for: New South Wales.

Physical Characteristics

An evergreen tree growing to 6m by 6m at a slow rate. It is hardy to zone 9 and is frost tender. It is in leaf all year, in flower from March to June. The scented flowers are hermaphrodite (have both male and female organs) and are pollinated by Diptera. We rate it 3 out of 5 for usefulness.

The plant prefers light (sandy), medium (loamy) and heavy (clay) soils and requires well-drained soil. The plant prefers acid, neutral and basic (alkaline) soils and can grow in very acid and very alkaline soils. It can grow in semi-shade (light woodland) or no shade. It requires moist soil.

Habitats and Possible Locations

Woodland, Secondary, Sunny Edge, By Walls, By South Wall, By West Wall.

Edible Uses

Condiment; Leaves.

Young shoots and leaves - cooked [105, 177]. Some caution is suggested because there is a report that the plant is poisonous in large quantities.

The old leaves are dried and used as a spice [105, 177].

Medicinal Uses

Disclaimer

Analgesic; Anthelmintic; Antirheumatic; Antispasmodic; Aromatherapy; Cardiotonic; Carminative; Diaphoretic; Odontalgic; Rubefacient; Sedative; Stimulant; Tonic.

Camphor has a long history of herbal use in the Orient with a wide range of uses. It has occasionally been used internally in the treatment of hysteria, but in modern day herbalism it is mainly used as the essential oil and internal use is not advised [254].

The wood and leaves are analgesic, antispasmodic, odontalgic, rubefacient, stimulant. An infusion is used as an inhalant in the treatment of colds and diseases of the lungs [46, 57, 176, 178, 238].

The plant is more commonly used in the form of the essential oil which can be obtained by distillation of the chipped branches, trunk and wood of the tree, or from the leaves and twigs. Wood 24 - 40 years old is normally used [268]. The essential oil is anthelmintic, antirheumatic, antispasmodic, cardiotonic, carminative, diaphoretic, sedative and tonic [4, 218, 238, 240]. It is used externally in liniments for treating joint and muscle pains, balms for chilblains, chapped lips, cold sores, skin diseases etc and as an inhalant for bronchial congestion [238]. Some caution is advised, excessive use causes vomiting, palpitations, convulsions and death [238]. It is possible that the oil can be absorbed through the skin, causing systemic poisoning [238].

The essential oil is used in aromatherapy. Its keyword is 'Piercing' [210]. It is used in the treatment of digestive complaints and depression [238].

Other Uses

Deodorant; Essential; Preservative; Repellent; Wood.

The essential oil 'camphor' is obtained from the leaves and twigs [1, 4, 46, 57, 61]. It is extracted commercially by passing a current of steam through the wood chips, 30 kilos of wood yielding 1 kilo of camphor [149]. Camphor is used medicinally, in perfumes, as an insecticide and also to make celluloid and as a wood preservative [171]. It can also be put in shoes to cure perspiring feet [178] (probably by acting as a deodorant rather than preventing perspiration [K]).

The wood has been burnt as a fumigant during epidemics [245].

Wood - beautifully grained. Used for furniture etc [4, 46].

Cultivation details

Succeeds in most soils [57] but prefers a fertile sandy moisture-retentive well-drained soil in full sun or light part-day shade [200]. Tolerates a pH in the range 4.3 to 8.

Camphor is grown commercially in China and Japan as a medicinal tree and also for its essential oil [46]. It is only hardy in the milder areas of Britain [11, 166], though it can survive occasional lows down to about -10°C when fully dormant [57]. The young growth in spring, even on mature plants, is frost-tender and so it is best to grow the plants in a position sheltered from the early morning sun [K]. There are various large trees that are growing well in Cornwall [59].

A very slow growing tree [4]. The roots are very sensitive to disturbance [164].

There are some named varieties, selected for their ornamental value [200].

Propagation

Seed - the seed has a short viability and is best sown as soon as it is ripe in a greenhouse [200]. Remove the fruit pulp since this can inhibit germination [200]. Germination can take 1 - 6 months at 20°C [164]. Stored seed should be sown as soon as possible in a warm greenhouse [78]. When they are large enough to handle, prick the seedlings out into individual pots and grow them on in a greenhouse for at least their first winter. Plant them out into their permanent positions in late spring or early summer, after the last expected frosts. Consider giving them some protection from the cold for at least their first two winters outdoors.

Cuttings of semi-ripe side shoots, 7cm with a heel, June/July in a frame with bottom heat [78].

Scent

Stem: Fresh Crushed Dried

The sweetly scented wood contains camphor.

Cultivars

No entries have been made for this species as yet.

Web References

- Details of Medicinal Uses, Habitats, etc. in M. Grieve [A Modern Herbal](#) (1931) [4]
- [H] Details of Scandanavian and European Common names in [Henriette's](#) names database
- [E] Ethnobotany Data (common names, uses, countries) from the [Ethnobotany Database](#) (sadly ftp only. The searchable web pages have been pulled).
- [V] [Images](#) from the [Vascular Plant Image Gallery](#) of the Texas A&M Bioinformatics Working Group.
- [B] [Data](#) (Latin & Common names, other references) from the BONAP's [Synonymized Checklist of the Vascular Flora of the United States, Puerto Rico, and the Virgin Islands](#).
- [S] [Illustration](#) from the [Southwest School of Botanical Medicine](#)
- [G] [Data](#) (Common Names, Uses, Distribution) from the USDA/ARS NPGS's [GRIN](#) taxonomic database.
- [P] [Data](#). (uses, distribution, wetland) from the [UDSA's plants database](#).
- [HP] [Links, Photos, Suppliers](#) from [Hortiplex](#) Plant Database

References for *Laurus camphora* (a possible synonym).

- [H] Details of Scandanavian and European Common names in [Henriette's](#) names database

References for *cinnamomum camphora* (a possible synonym).

- [HP] [Photo](#) From [Henriette's plant pictures](#)

See the [PFAF Links Pages](#) for other sources or the [The Gatherer](#) where you can search many other sources all in one go.

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Notes from observations, tasting etc at Plants For A Future and on field trips.

[1] **F. Chittendon.** *RHS Dictionary of Plants plus Supplement.* 1956 Oxford University Press 1951 Comprehensive listing of species and how to grow them. Somewhat outdated, it has been replaced in 1992 by a new dictionary (see [200]).

[4] **Grieve.** *A Modern Herbal.* Penguin 1984 ISBN 0-14-046-440-9
Not so modern (1930's?) but lots of information, mainly temperate plants.

[11] **Bean. W.** *Trees and Shrubs Hardy in Great Britain. Vol 1 - 4 and Supplement.* Murray 1981
A classic with a wealth of information on the plants, but poor on pictures.

[46] **Uphof. J. C. Th.** *Dictionary of Economic Plants.* Weinheim 1959
An excellent and very comprehensive guide but it only gives very short descriptions of the uses without any details of how to utilize the plants. Not for the casual reader.

[57] **Schery. R. W.** *Plants for Man.*
Fairly readable but not very comprehensive. Deals with plants from around the world.

[59] **Thurston.** *Trees and Shrubs in Cornwall.*
Trees and shrubs that succeed in Cornwall based on the authors own observations. Good but rather dated.

[61] **Usher. G.** *A Dictionary of Plants Used by Man.* Constable 1974 ISBN 0094579202
Forget the sexist title, this is one of the best books on the subject. Lists a very extensive range of useful plants from around the world with very brief details of the uses. Not for the casual reader.

[78] **Sheat. W. G.** *Propagation of Trees, Shrubs and Conifers.* MacMillan and Co 1948
A bit dated but a good book on propagation techniques with specific details for a wide range of plants.

[105] **Tanaka. T.** *Tanaka's Cyclopaedia of Edible Plants of the World.* Keigaku Publishing 1976
The most comprehensive guide to edible plants I've come across. Only the briefest entry for each species, though, and some of the entries are more than a little dubious. Not for the casual reader.

[109] **Wilson. E. H.** *Plantae Wilsonae*.

Details of the plants collected by the plant collector E. H. Wilson on his travels in China. Gives some habitats. Not for the casual reader.

[149] **Vines. R. A.** *Trees of Central Texas*. University of Texas Press 1987 ISBN 0-292-78958-3
Fairly readable, it gives details of habitats and some of the uses of trees growing in Texas.

[164] **Bird. R. (Editor)** *Growing from Seed. Volume 4*. Thompson and Morgan. 1990
Very readable magazine with lots of information on propagation. A good article on Yuccas, one on Sagebrush (*Artemisia* spp) and another on *Chaerophyllum bulbosum*.

[166] **Taylor. J.** *The Milder Garden*. Dent 1990
A good book on plants that you didn't know could be grown outdoors in Britain.

[171] **Hill. A. F.** *Economic Botany*. The Maple Press 1952
Not very comprehensive, but it is quite readable and goes into some a bit of detail about the plants it does cover.

[176] **Yeung. Him-Che.** *Handbook of Chinese Herbs and Formulas*. Institute of Chinese Medicine, Los Angeles 1985
A very good Chinese herbal.

[177] **Kunkel. G.** *Plants for Human Consumption*. Koeltz Scientific Books 1984 ISBN 3874292169
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[178] **Stuart. Rev. G. A.** *Chinese Materia Medica*. Taipei. Southern Materials Centre
A translation of an ancient Chinese herbal. Fascinating.

[200] **Huxley. A.** *The New RHS Dictionary of Gardening. 1992*. MacMillan Press 1992 ISBN 0-333-47494-5
Excellent and very comprehensive, though it contains a number of silly mistakes. Readable yet also very detailed.

[210] **Westwood. C.** *Aromatherapy - A guide for home use*. Amberwood Publishing Ltd 1993 ISBN 0-9517723-0-9
An excellent little pocket guide. Very concise.

[218] **Duke. J. A. and Ayensu. E. S.** *Medicinal Plants of China* Reference Publications, Inc. 1985
ISBN 0-917256-20-4
Details of over 1,200 medicinal plants of China and brief details of their uses. Often includes an analysis, or at least a list of constituents. Heavy going if you are not into the subject.

[238] **Bown. D.** *Encyclopaedia of Herbs and their Uses*. Dorling Kindersley, London. 1995 ISBN 0-7513-020-31
A very well presented and informative book on herbs from around the globe. Plenty in it for both the casual reader and the serious student. Just one main quibble is the silly way of having two separate entries for each plant.

[240] **Chopra. R. N., Nayar. S. L. and Chopra. I. C.** *Glossary of Indian Medicinal Plants (Including the Supplement)*. Council of Scientific and Industrial Research, New Delhi. 1986

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[245] **Genders. R.** *Scented Flora of the World*. Robert Hale. London. 1994 ISBN 0-7090-5440-8

An excellent, comprehensive book on scented plants giving a few other plant uses and brief cultivation details. There are no illustrations.

[254] **Chevallier. A.** *The Encyclopedia of Medicinal Plants* Dorling Kindersley. London 1996 ISBN 9-780751-303148

An excellent guide to over 500 of the more well known medicinal herbs from around the world.

[268] **Stuart. M. (Editor)** *The Encyclopedia of Herbs and Herbalism* Orbis Publishing. London. 1979 ISBN 0-85613-067-2

Excellent herbal with good concise information on over 400 herbs.

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This page http://www.ibiblio.org/pfaf/cgi-bin/arr_html?Cinnamomum+camphora (US)

.innamomum camphora **CAMPBOR TREE**

General Notes

Provide good drainage in clay soil. Smog tolerant. Has Fragrant Flower and Leaf. SelecTree lists 1 cultivar of *camphora*: '[monum](#)'

☑List all [Lauraceae](#) | [Cinnamomum](#)

-
- [Family](#): Lauraceae
 - California Native: No
 - [Habit](#): Evergreen
 - [Sunset Zones](#): 8 - 9 and 12 - 24
 - [USDA Hardiness Zones](#): 9 - 11
 - [Exposure](#): Full Sun to Partial Shade
 - [Water Needs](#): Moist Soil
 - [Soil Type](#): Clay, Loam or Sand
 - [Soil pH](#): Slightly Acidic to Highly Alkaline
 - [Salinity Tolerance](#): Coastal Moderate

- [Seaside Tolerance](#): Good in Mild Zone
- [Height](#): 65 feet
- [Growth Rate](#): 24 Inches per Season
- [Shape](#): Rounded or Umbrella, Erect or Spreading and covers an Extensive Area.
- [Longevity](#): 40 to 150 years
- [Leaves](#): Elliptic Glossy Light to Medium Green
- [Flowers](#): Inconspicuous, Fragrant, . Flowers in Spring.
- [Fruit](#): Black Drupe, Small (0.25 - 0.50 inches) , fruiting in Winter or Summer.
- [Bark](#): Dark Gray, Light Gray or Red Brown, Blocky or Furrowed
- [Pest & Disease](#): Susceptible to Anthracnose, Oak Root Rot, Phytophthora, Root Rot and Verticillium.
- [Shading Capacity](#): Rated as Dense in Leaf
- [Branch Strength](#): Rated as Strong
- [Litter Issue](#): Dry Fruit
- [Root Damage Potential](#): Rated as High
- [Health Hazard](#): Allergy
- [Biogenic Emissions](#): Low
- [Fire Resistance](#): Favorable

Q: I have a large Camphor tree in my back yard that is beginning to overhang the roof. It needs to be cut back, but because it is evergreen, I am not sure when to prune. It is covering most of the yard at this point, and I have very little light.

A: *Cinnomomum camphora* is the botanical name of your camphor tree, which is in the same family as Avocados and Bay laurels. Like many members of the Lauraceae, the bark, wood and leaves contain ethereal oils that have been used as culinary spices, medicinally and in incense. Until the 1950's, large plantations of Camphor were grown in Japan, Taiwan, southeast China and Indonesia as a source of Camphor oil, distilled from mature trees.

This slow-growing tree can get to 50x70 foot in width with age, and it can live for 150 years if drainage is adequate. Bright green leaves in the spring emerge along with tiny, inconspicuous pale yellow flowers that become black berries by fall, beloved by birds. The leaves darken to a medium green by summer, contrasting with the dark gray fissured bark. *Cinnamomum camphora* has escaped cultivation in Australia's tropical biomes, where it has become a noxious weed.

Camphors cast a fairly dense shade, and can be difficult to plant beneath. Allow though the trees are evergreen, the old leaves fall when the new leaves emerge, long after the rakes have been put away. The camphor in the leaves can kill freshwater fish, and inhibits the growth of other plants. Camphors are not susceptible to many insect pests due to the oil content in the leaves and wood, however they are susceptible to several varieties of root rot fungi.

The tree has a natural umbrella-like shape as they mature, and pruning it back on one side may make the tree lopsided and awkward. Camphors are damaged by temperatures below 20F, and should not be pruned in the winter months. Pruning stimulates new growth, and new growth is more frost sensitive. These large trees become too large for most residential landscapes, although they are excellent shade trees for parks and large gardens. The trees can be pruned in the late spring, preferable by an arborist who can maintain the canopy shape while lifting it away from your roof. The trees are not considered to be a high fire risk with their leathery foliage, however firesafe recommendations are to keep limbs 10' away from the roof. You may want to evaluate if this tree has outgrown the space you have for it.