



## Ethnobotanical Leaflets



# Camphor: A Diminishing Industry of Great Importance

By Amanda Boyd

Camphor, a member of the Family Lauraceae (Heywood, 1978), is much valued in different parts of the world, particularly in China. This prized botanical has been said to originate in China, but there have been references to Japan, Taiwan and East Asia in similar time periods. Camphor is abundant in mostly sub-tropical countries including India and Ceylon. The camphor tree also thrives in Egypt, the Canary Islands, Argentina, Europe, Florida, California, and Formosa. As trade routes to the east developed, the camphor tree began to flourish. Particularly important to Formosa, its abundance on the island formerly gave Japan control of the natural supply of camphor (VanNostrand 1968).

## Characteristics

The camphor tree is an evergreen tree possessing many branches, small clustered white flowers, and red berries much like cinnamon. The *Cinnamomum camphora* tree grows to be 80 - 120 feet tall and the trunk reaches 6 feet in diameter (Internet site 3). Because of its enormous size, it is known to be a provider of great amounts of shade, which is its primary purpose in Florida, California and other southern states. The camphor tree is linked as a reminiscent of the lime or linden tree originally from Europe (Internet site 2). It is a near relative to *Cinnamomum zeylanicum* (Janick 1969).

In order to obtain a product from the tree, certain procedures must be accomplished. The old method of extracting camphor has yet remained and involves chopping down a tree that has aged over fifty years. The camphor is ready to be extracted only if the tree is over fifty years old. After cutting the tree down, it is cut up into small pieces and distilled by primitive means. The crude product obtained is further distilled to remove the oil of camphor present and obtain crystalline camphor (VanNostrand 1968).

According to Dreamlink Limited of the United Kingdom, the oil is extracted by steam distillation from the pulverized wood, branches and stump and by condensing those vapors. There are three separate fractions of the camphor oil; white being the lightest, brown as the medium oil, and yellow being the heaviest oil. Each has the camphoraceous sharp odor (Internet site 3). The camphor crystallizes from the oily portion of the distillate and purification is completed by pressing the wood and also by sublimation.

A notable fact about camphor is the abundance that can be gathered even in only a small amount of trees. One single tree produces three tons of camphor in both oil and solid form combined. The wood chips themselves contain five percent of the essence of camphor (Janick 1969). There are two products obtained from these techniques, the oil of camphor and the white crystalline solid form of camphor. The solid product is a volatile substance with a penetrating aromatic odor. The oil is gathered by fractional distillation and attains the same pungent scent as the solid camphor. The physical properties of this organic compound, specifically, are a melting point of 179 degrees Celsius, a boiling point of 209 degrees Celsius, and its characteristic odor. Camphor is insoluble in water, but soluble in ether or alcohol (Encarta 1998). The molecule itself is not difficult to obtain, as it can be found in Labiatae, Compositae, and Dipterocarpaceae families (Janick 1969).

## History

Marco Polo gave mention of camphor to the Chinese in the thirteenth century, which may be one of the earliest records of the *C. camphora* tree and its value. In addition, in 1571, the Camoens called camphor the "balsam of disease." (Internet site 1) As mentioned previously, the Chinese attribute many virtues to camphor. Camphor has long been valued for its great medicinal properties among its other uses. There are two derivatives of the oil of Camphor, both which serve similar purposes, but are found in commerce as separate substances, *Cinnamomum camphora* and *Dryobalanops aromatica*. Camphor and its oil product's actions include anti-inflammatory, antiseptic, antiviral, bacterial, counter-irritant, diuretic, expectorant, rubefacient, stimulant, and vermifuge. The camphor compound can be used both internally and externally (Internet site 3). Camphor is commonly mixed with other ingredients to aid in the relief of particular ailments.

Externally, camphor can be applied directly to the head, temples and neck of individuals who suffer from withdrawal from drugs such as opium (Internet site 2). It is used as a numbing agent, a counter irritant for rheumatism, sprains, bruises, bronchitis, and other inflammatory conditions (Internet site 1). Camphor has also been known to act as an insect repellent, on ointment for skin care (Fishbein 291) and wound dressing, aromatherapy, and as an external inhalant for ailments such as cough and nasal congestion when mixed with menthol and desoxyephedrine (Somerville 1996).

Internally, camphor is given hypodermically as an injection, in substance, or in capsules (Internet site 1). Camphor treats many ailments and medical conditions. These conditions include chills, cholera, cold, colic, constipation, depression, diarrhea, fever, flatulence, and gout. For heart disorders, oil of camphor acts as a stimulant on the heart (VanNostrand 1968). Also, hypotension, hysteria, infectious disease, influenza, insomnia, muscular disorders, nervous tension, pneumonia, rheumatism, shock, toothache, tuberculosis, ulcers, urinary tract infection, vomiting, and wounds can be treated with camphor. Each is treated in the form mentioned previously, by injection, capsule, or in substance form mixed with other ingredients (Internet site 3).

One common misconception of treating a medical condition with camphor is that camphor acts as a preventive to infectious diseases. On the contrary, it is a very acrid compound and is very poisonous in

large doses (Encarta 1998). In some cases, such as heart disease, camphor should be used with extreme caution.

Although camphor is widely known for its medicinal values, it has many other uses. Camphor has been used to produce lacquers and different explosives. It has been especially useful in the production of celluloid from nitrocellulose, which is used to account for most of the world's camphor production (Janick 1969). Unfortunately, celluloid has been supplemented by a wide variety of plastics. This is much of the reason why the demand for camphor in industry has greatly diminished. The loss of need for camphor and slow destruction of trees and crops contribute to the threatened camphor industry. In addition, the wood of the camphor tree is often used for cabinet making. The wood is used for display cases by entomologists and by many natural history museums as well as collectors because of its great preservation and protection capabilities (Internet site 1). For the same reasons, it is made as an insecticide, commonly used for protecting clothing from moths and protecting paper from termites (Internet site 2). The oil is also used for making varnish and Chinese inks, and as a diluent for an artists' palette of colors. Lastly, it has been used in funeral rites for the wealthy who use it for embalming as a preservative (Internet site 1).

The camphor tree, is also considered to be a desirable ornamental tree for landscaping and providing shade. As one can see, *Cinnamomum camphora* is important both in industry and the world of medicine. Although the camphor tree is known to have many wonderful uses and functions, it is slowly diminishing from the botanical world. The Chinese and those who have found benefit from camphor have long valued the qualities of the plant. Economically, *Camphor*, even in its threatened environments, is a very important botanical.

## References

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Internet site (2) [www.mayalu.com/Camphor.htm](http://www.mayalu.com/Camphor.htm)

Internet site (3) [www.dreamlink.co.uk/oils/oils1028.html](http://www.dreamlink.co.uk/oils/oils1028.html)

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