**Botanical Name**

*Chamaecyparis obtusa*

**Botany and Origins**

Hinoki oil is commonly derived from the wood; however, an essential oil from the needles is also available. Hinoki is listed as ‘near threatened’ in the ICUN Red List of Threatened Species; however, this is in reference to old growth hinoki trees. Old growth hinoki trees are protected species in Japan. Many Japanese people that I have spoken to were surprised that hinoki tree is a near threatened species as there are so many hinoki forests throughout Japan; however, most of these forests are plantation forests. Most hinoki oil is now distilled from sawdust and timber offcuts from the building industry and from trees cut as part of the forest thinning and management of sustainably grown plantation trees.

**Method of Extraction**

Steam distillation.

**Characteristics**

The scent of hinoki wood is dry, fine, woody note with a light terpene-like nuance and a warm, sweet, somewhat spicy undertone.

**Chemical Composition**

The chemical composition of hinoki wood oil was reported as follows:α-thujene (1.01%), α-pinene (2.57%), camphene (0.57%), sabinene (19.58%), β-pinene (0.42%), myrcene (6.28%), β-pinene (1.56%), limonene (8.77%), p-cymene (0.89%), Y-terpinene (5.03%), terpinolene (1.66%), terpinen-4-ol (3.39%), α-terpineol (0.41%), bornyl acetate (7.07%), α-terpinyl acetate (14.02%), cis-thujopsene (3.11%), trans-muurola-4(14),5-diene (2.36%), germacrene D (0.18%), δ-cadinene (0.83%), elemol (4.62%), beyerene (2.13%). An analysis of the phytoncides in the forest air was measured by Li *et al.* and reported as follows (measured as ng/m3):

Tricyclene (299.7), α-pinene (2,886.7), camphene (375.6), β-pinene (137.5), myrcene (109.4), δ-3-carene (66.4), α-terpinene (43.8), p-cymene (109.4), limonene (111.1), terpinolene (87.5), camphor (32.8), bornyl acetate (54.7). The weather at the time of measurement was reported to be excellent with the temperature of 16.31 ± 0.23°C and the humidity of 99.77 ± 0.44%.

Many of the components of hinoki wood essential oil were detected in the forest air. This clearly suggests that it is possible to recreate a aroma component of a shinrin-yoku experience by diffusing hinoki wood oil.

**History and Traditional Uses**

Hinoki wood has traditionally been used for the construction of temples and traditional buildings in Japan. It is used in traditional Japanese incense making. Hinoki wood is used to make traditional Japanese bathtubs. Hinoki wood oil is commonly used in Japan as an air purifier.

**Pharmacology and Clinical Studies**

**Shinrin-yoku effects**

Shinrin-yoku which is defined as ‘taking in the forest atmosphere or forest bathing’ has been receiving increasing attention in Japan, Korea and Taiwan for its capacity to promote relaxation and reduce stress. Many studies have examined the elements of shinrin-yoku that promote this relaxation response and the health benefits associated with forest bathing. It is known that the sensory stimulation of the five senses – the olfactory elements (the phytoncides), auditory elements (sound of a running stream or rustle of the leaves), tactile sensations (feeling the surfaces of the tree and the leaves), and the visual elements all support positive physiological responses.

One of the components in many conifer oils, including hinoki wood oil is α-pinene. Studies have found at concentrations at 10µL/30 L and 100 µL/30 L, the subjects of a clinical trial found the scent comfortable and a decrease in systolic blood pressure was reported; however, at higher concentrations 500µl/30 L, the scent was reported as strong and did not cause a decrease in systolic blood pressure.
There have been many reports and studies examining the effects of forest bathing. These studies have identified enhancement of parasympathetic nervous system activity, inhibition of sympathetic nervous activity, reduction of blood pressure, reduction of pulse rate, and reduced levels of stress hormones such as cortisol.\(^5\)

Olfactory stimuli of air-dried wood chips of hinoki cypress, has been shown to reduce oxyhemoglobin (oxy-Hb) concentrations in the prefrontal cortex. Inhalations of α-pinene and limonene, which are components of hinoki wood oil, decreased systolic blood pressure and enhanced parasympathetic nervous system activity and decreased heart rate.\(^6\)

One interesting study did not involve the scent of the essential oil, but our tactile sense - touch. Twenty-two female university students participated in a study that involved measuring the physiological response of touching uncoated hinoki cypress wood. Marble was used as the control material. The study involved participants sitting with their eyes closed and touching the materials for 90 seconds. The researchers then measured oxy-Hb concentrations in the left/right prefrontal cortex using near-infrared time-resolved spectroscopy and heart rate variability was used as an indicator of autonomic nervous activity. The results showed the tactile stimulation of hinoki wood significantly calmed the prefrontal cortex activity and increased parasympathetic nervous system activity compared with marble, thereby inducing physiological relaxation.\(^7\)

**Immune system**

An in vitro study confirmed that scent of hinoki stem oil, hiba wood oil, 1,8-cineole and α-pinene significantly increased natural killer (NK) cell activity in a dose dependent way and had a regulatory effect on immune function in humans.\(^8\)

In another study Li et al. investigated how long the increased NK activity lasts and compared the effects of a forest bathing trip on NK activity with a trip to a city without forests. Twelve healthy male subjects, age 35-56 years were selected for the study. The subjects experienced a three-day/two-night trip to the forest and to a city, in which activity levels during both trips were monitored and compared. The trip to the forest significantly increased NK activity and significantly decreased concentrations of adrenaline in the urine. The increased NK activity lasted for more than 7 days after the trip. In contrast, the trip to the city did not increase NK activity, nor the selection of anticancer proteins and did not decrease the concentration of adrenaline in the urine. Phytocides, such as α-pinene and β-pinene were detected in the forest air, but not the city air.\(^9\)

Li et al. also examined the factors in the forest environment that activate human natural killer (NK) cells. The participants were twelve healthy males aged between 37 and 60 years, who stayed for three nights in a room at an urban hotel where hinoki wood oil was vapourised. Blood samples were taken on the last day and urine samples analysed every day for the duration of the trial. The concentrations of adrenaline and noradrenaline in the participants’ urine was reduced and natural killer cell activity was induced. It concluded that olfactory stimulation by hinoki wood oil brought about improvement in immune functions.\(^9\)

**Insecticidal**

Exposure to hinoki wood essential oil decreased the lifespan, fecundity, locomotor activity, and developmental success rate of *D. melanogaster* fruit fly and *Musca domestica*. The oil also displayed strong repellent activity up to 5 hours at 70ug/ml. It was suggested that C. obtusa could be used as a human-friendly alternative insect repellent.\(^10\)

Studies have confirmed the effectiveness of hinoki wood oil to supress the activity of house dust mites. One study found that tatami mats made with hinoki wood wool provided a suppressive effect on mites for a period of 52 weeks.\(^11\)

**Stress**

One study examined the effects of inhalation of hinoki wood oil to reduce anxiety and induced relaxation. The study confirmed that inhalation of hinoki wood oil induced the same physiological response associated with the practice of shinrin-yoku. After inhaling hinoki wood oil, blood pressure and heart rate decreased, whereas sympathetic activity increased and parasympathetic activity decreased. It was suggested that the scent of hinoki wood oil may enhance mood.\(^12\)

Another study found that diffusing hinoki wood essential oil increased the secretion of salivary dehydroepiandrosterone sulphate (DHEA) levels after monotonous work. The control trial involved nine male volunteers, all of whom were clerical officers with daily labour burdens that did not change significantly during the day.\(^13\)

DHEA sulphate is a sulphated metabolite of DHEA, an androgen precursor secreted by the adrenal cortex. It has been demonstrated that acute psychosocial stress induces an increase in DHEA and DHEA sulphate, which play a protective role against the potential damaging effects of excessive cortisol activity. DHEA has been identified as having neuroprotective, anti-inflammatory, anti-gluocorticoid and antidiabetic activity. While the sample group was small and did not include women, the researchers concluded that suggested that the increase in DHEA was significant enough to reduce stress levels.\(^13\)

A study involving 8 male and 8 female college students within the age group of 20-21 years found that inhalation of hinoki wood oil improved ANS responses such reduction in systolic blood pressure, heart rate and parasympathetic nervous system activity. It was suggested that inhalation of hinoki wood oil may regulate the autonomic nervous system and stimulate positive mood states.\(^14\)

---

**PROPERTIES**

Anxiolytic, antiseptic, antimicrobial, immunostimulant, insecticidal, sedative.

**AROMATHERAPY USES**

**Psychological**

Hinoki wood oil may be used for reducing stress, anxiety and nervous tension.

**Insect repellent**

Studies have confirmed that the oil may be effective as a natural insect repellent.

**Respiratory system**

Hinoki wood oil has been traditionally used to alleviate respiratory congestion associated with blocked sinuses and chest congestion.\(^15\)

**ENERGETICS**

According to the principles of TCM, hinoki wood oil strengthens the Lungs and balances the Metal Element. It is
ideal in a blend for the relief of colds and influenza, chronic cough, excessive phlegm and sinus congestion.

**SUBLIME**

The fresh light woody scent of hinoki wood oil suggests that it is beneficial to promote a calming and relaxing ambiance that nurtures spiritual awareness.

The scent hinoki wood very soothing, dispelling negativity and promoting a sense of spiritual calmness and tranquility.

Like many wood oils the scent of hinoki wood imparts a subtle grounding effect which has a stabilising effect on our energy, which is beneficial whenever we feel a disconnection from our surroundings or our spirit.

**HOW TO USE**

Bath

Full body bath, foot bath

Topical

Compress, massage, ointment

Inhalation

Direct inhalation, diffuser, oil vaporiser

**BLENDING TIPS**

Aromatherapy

To alleviate stress, nervous tension and anxiety consider blending hinoki wood oil with bergamot, geranium, hiba wood, lavender, sweet orange, sweet marjoram, *Santalum album*, *Santalum spicatum* or vetiver.

To alleviate the symptoms of colds and influenza consider blending hinoki wood with cajeput, blue mallee eucalyptus, fragonia, niaouli, myrtle, peppermint, pine, black spruce or tea tree.

To promote inner calm and harmony consider blending hinoki wood oil with essential oils such as bergamot, atlas cedarwood, clary sage, fragonia, lavender or *Santalum spicatum*.

To promote confidence and self-esteem consider blending hinoki wood oil with essential oils such as black pepper, atlas cedarwood, ginger, hiba wood, pine, rosemary or black spruce.

To recreate the effects of shinrin-yoku consider blending hinoki wood oil with essential oils such as Atlas cedarwood, blue mallee eucalyptus, Siberian fir, fragonia, hiba wood, hinoki leaf, pine, black spruce or vetiver.

To create a meditation blend that strengthens our spiritual awareness consider blending hinoki wood oil with essential oils such as frankincense, lemon, hiba wood, myrrh, patchouli, *Santalum album*, *Santalum spicatum* or vetiver.

**Perfumery**

Hinoki wood oil is typically not used in perfumery. While it would impart a delicate pine-like woody note to a blend, it lacks the tenacity of many other wood oils. It would be better suited to a room freshener style perfume to impart a pleasant shinrin-yoku (bathing in the forest) effect.

**SAFETY**

No known hazards or contraindications for hinoki wood essential oil.

**REFERENCES**

1. Farjon A. *Chamaecyparis obtusa*: The IUCN Red List of Threatened Species 2013; eT422121A2962056.