

TEA TREE

Latin Name: *Melaleuca alternifolia*

Botanical Family: Myrtaceae

Other Common Names: T-tree, Ti tree, Narrow leaved Paperbark, Narrow-leaved Tea-Tree, Narrow-leaved Ti-tree, or Snow-in-Summer



Extraction Information

Country of Origin:	Australia, New Zealand
Part of Plant Used:	Leaves
Extraction Method:	Steam Distillation
Oil Content:	2 – 5%
Color of Oil:	Clear to Pale Yellow

Blending Information

Odor Description:	Spicy, Warm, Balsamic
Blending Factor:	3
Note:	Middle to Top
Energy:	Cool, Toning
Blends Well With:	Black Spruce, Blue tansy, Cistus, Eucalyptus sp. (all species), Fir, Green Myrtle, Manuka, Monarda, Pinus sp., Ravintsara, Rosemary (all chemotypes), Saro, Spike Lavender (<i>L. latifolia</i>), Thyme (all chemotypes)
Indicated For:	Acne, nail fungus, oily skins, abscesses, boils, cold sores, cuts, dandruff, herpes simplex, insect bites, lice, rashes, shingles, infected wounds, varicose ulcers, athlete's foot, ringworm, inflamed skin conditions, varicose veins, juvenile acne, acne rosacea, prevention of skin radiation burns

Safety Information:	Hazards: Skin sensitization (low risk)
	Cautions (dermal): Old or oxidized oils should be avoided.
	Maximum dermal use level: 15%

Botany: *Melaleuca alternifolia* is native to Australia, where it is found from Queensland to north-east New South Wales, at up to 300 m above sea level. The genus *Melaleuca* belongs to the myrtle

family (Myrtaceae) and includes about 250 species (including paperbarks, some of which are cultivated as ornamentals). Most Melaleuca species are restricted to Australia. *M. alternifolia* bears fluffy, white masses of flowers from spring to early summer, and its narrow leaves help distinguish it from the similar species *M. linariifolia*, which has wider leaves and flattish-spherical fruits.¹

Captain James Cook, the 18th century explorer, is reported to have used tea tree leaves to brew a spicy tea, although the common name 'tea tree' has been applied to several plants in the genera *Melaleuca* and *Leptospermum* (also in Myrtaceae), so the exact species he used is unknown.²

History + Myth

Traditionally, the crushed leaves of *Melaleuca alternifolia* were used by Australian Aborigines to treat skin infections. Today, *M. alternifolia* is commercially cultivated (especially in north-east New South Wales) for tea tree oil, an essential oil which is used as an antiseptic in skin care products, in the perfume industry, and in soaps and mouthwashes. The oil is effective against bacterial, fungal and viral infections, and is used in products to treat such conditions as athlete's foot, warts, acne, and vaginal infections. Tea tree oil is also used for treating respiratory problems, such as asthma and bronchitis.³

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Therapeutic Actions

Antibacterial (broad spectrum), antibiotic, **antifungal**⁵, anti-inflammatory, **antimicrobial**⁶, antiseptic, antispasmodic, **antiviral**, **decongestant (venous and lymphatic)**, **expectorant**, **immune-stimulant**, **neurotonic**, stimulant

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Chemical Feature:

Rich in monoterpene alcohol: terpinen-4-ol and monoterpenes

Core Aromatic Applications:

- **Digestive system:** colic, diarrhea, enteritis, intestinal parasites, dental hygiene⁷, gum problems, mouth ulcers, oral thrush, *Candida albicans*, infections of the mouth, canker sores, abscesses, gingivitis, hemorrhoids
- **Lymph/Immune System:** lowered or compromised immunity, lymph congestion
- **Musculoskeletal system:** tired, achy muscles and joints, arthritis, rheumatism
- **Reproductive/Endocrine system:** leucorrhoea, vaginal candidiasis⁸
- **Respiratory system:** colds, flu, bronchitis, sinus infections or congestion, coughs, sore throat, tonsillitis, ear infections
- **Skin:** acne, nail fungus, oil skins, abscesses, boils, cold sores⁹, cuts, dandruff, herpes simplex¹⁰, insect bites, lice, rashes, shingles, infected wounds, varicose ulcers, varicose veins, athlete's foot, ringworm, inflamed skin conditions¹¹, juvenile acne, acne rosacea, prevention of skin radiation burns
- **Urinary system:** cystitis, urethritis
- **Ayurveda:** reduces excess kapha, cools pitta
- **Traditional Chinese Medicine:** In TCM, tea tree can tonify Qi-energy in cases of chronic lethargy, shallow breathing, palpitations, and poor circulation.¹²

Chemical Composition

General Chemical Composition of *Melaleuca alternifolia*

Chemical Family	Components
Monoterpenes	α -pinene (2.50-4.24%), α -terpinene (8.90-12.76%), γ -terpinene (19.80-25.44%), d-limonene (1.10-1.63%), paracycymene (2.2-3.00%), sabinene (0.10-0.29%), terpinolene (3.10-3.68%), α -thujene (1.142%), b-pinene (0.853%), α -phellandrene (0.63%), b-phellandrene (0.9%), b-ocimene (0.06%), p-cymenene (0.06%)
Sesquiterpenes	δ -cadinene (1.00%), aromadendrene (0.835-1.30%), ledene (0.80%), α -copaene (0.05%), isolendene (0.1%), α -gurjunene (0.21%), b-caryophyllene (0.24%), gamma-maaliene (0.04%), b-gurgunene (0.7%), selina-3,5-diene (0.103%), cadina-3,5-diene (0.09%), α -humulene (0.07%), allo-aromadendrene (0.323%), trans-cadina-1(6),4-diene (0.235%), delta-selinene (0.06%), viridiflorene (0.695%), bicyclogermacrene (0.774%), α -muurolene (0.04%), delta-cadinene (0.692%)
Monoterpene Alcohols	α -terpineol (2.80%), terpinen-4-ol (33.56-40.70%) , linalol (0.07%)
Sesquiterpene Alcohols	globulol (0.22-0.40%), viridiflorol (0.09-0.50%), ledol (0.06%)
Oxides	1,8-cineole (2.32-4.70%)

<http://www.stillpointaromatics.com/tea-tree-essential-oil-aromatherapy?keyword=tea%20tree> and www.florihana.com Tea Tree Lot #B030314AU1

Keywords: Antibacterial, antifungal, antiviral, immune enhancing

Research/ Additional Notes:

- Tea Tree provides effective treatment for Candida infection. The results of our investigations demonstrate that TTO treatment is efficacious in resolving experimental Candida infection, with both fluconazole-susceptible and -resistant isolates. In the case of the drug-susceptible organism, treatment with TTO was comparable to a standard treatment with fluconazole.¹³
- Tea tree and terpinen-4-ol effective in treating oral candidiasis. These results suggest that TTO and terpinen-4-ol may have the potential of therapeutic ability for mucosal candidiasis which may also be applicable to *C. albicans* oral candidiasis induced by the azole-resistant strain.¹⁴
- Tea tree and terpinen-4-ol exhibit anticancer activity. TTO and terpinen-4-ol had significant anti-proliferative activity against two tumor cell lines. Moreover, the identification of primary necrotic cell death and cell cycle arrest of the aggressive tumor cells highlights the potential anticancer activity of TTO and terpinen-4-ol.¹⁵
- Tea tree exhibits antiviral activity against influenza virus. These data show that TTO has an antiviral activity against influenza A/PR/8 virus subtype H1N1 and that antiviral activity has been principally attributed to terpinen-4-ol, the main active component.¹⁶
- Tea tree exhibits anti-inflammatory activity. 25 μ L of 100% tea tree oil was applied topically to the study forearm of 21 volunteers. This study showed that tea tree oil can reduce histamine-induced skin inflammation.¹⁷
- Tea tree (*Melaleuca alternifolia*) exhibits anti-candidal activity. May provide effective treatment for Oral candidiasis.

M. alternifolia essential oil showed an anti-candidal activity and inhibited filamentation of these fungi. Such results apply the possibility of using these oils in mouth brush application.¹⁸

- Tea tree effective for treating dandruff.
5% dilution of Tea Tree essential oil in shampoo effective in the treatment of dandruff. Dandruff appears to be related to the yeast *Pityrosporum ovale*. Tea tree oil has antifungal properties with activity against *P. ovale* and may be useful in the treatment of dandruff.¹⁹

NOTE: The chemistry of tea tree, in particular its 1,8 cineole and terpinen-4-ol content, has been a subject of great debate, mostly for safety considerations. According to Kerr, “the Australian Government has a standard for Tea tree essential oil which states that the 1,8 cineole content should not exceed 15% and the terpinen-4-ol content should be at least 30%.”²⁰ Buckle (2003) says that one should look for *Melaleuca alternifolia* CT terpineol rather than a tea tree rich in cineole, as cineol can produce discomfort when applied to mucus membranes as well as increase the chance of skin irritation.²¹

However, according to Southwell (n.d.), his research shows clearly that there are no grounds for promoting low cineole oils other than for avoiding low terpinen-4-ol oils. If all buyers could be convinced of this, more tea tree oil could be offered for sale, providing a yield boost to many producers.” Carson (1999) reports “1,8 cineole was regarded as an undesirable constituent in tea tree oil due to its reputation as a skin and mucous membrane irritant. However, the latter 2 case studies (Knight & Hausen, 1994 and Southwell et al, 1997) indicate that this component is not responsible for a large proportion of sensitivity reactions.”²²

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