

Melaleuca alternifolia

(Maiden & Betche) Cheel

Myrtaceae

LOCAL NAMES

English (tea tree oil, narrow-leaved paperbark)

BOTANIC DESCRIPTION

Melaleuca alternifolia is a shrub, up to 7 m tall, with layered, papery bark.

Leaves variously arranged, scattered to whorled often on one branchlet; petiole 1 mm long; blade linear-acute, 10-35 mm x 1 mm, 3-veined (often only mid-vein visible), puberulous, glabrescent, dotted with oil glands visible with a lens.

Inflorescence a many-flowered, open to dense, upper-axillary or terminal spike; flowers solitary within each bract with tubular calyx up to 3 mm long and white corolla 2-3 mm long, stamens 30-60, white, clawed, pistil with 3-4 mm long style and capitate stigma.

Fruit a many-seeded, globose, woody capsule, 2-3 mm in diameter.

BIOLOGY



trees (TopTropicals.com)



flowers (TopTropicals.com)



flowering (TopTropicals.com)

ECOLOGY

M. alternifolia occurs in the warm, wet east coast of Australia, often in swampy circumstances in dense impenetrable thickets. Mean summer maximum temperature is 27-31 deg. C, mean minimum 17-19 deg. C, mean winter maximum 18-21 deg. C, mean minimum 6-7 deg. C, and the species is frost sensitive. Leaf oil content is highest in warmer months

BIOPHYSICAL LIMITS

Altitude: Up to 300 m

Mean temperature: 17- 19 deg. C to 27-31deg. C

Average annual rainfall: 1000-1600 mm.

Soil types: On a range of soils (pH 4.5-7).

DOCUMENTED SPECIES DISTRIBUTION

Native: Australia

Exotic:



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

PRODUCTS

Essential oils: The valuable essential oil, tea-tree oil or Australian melaleuca oil, is water- or steam-distilled from the leaves and small twigs. The oil is also of interest in the perfume industry, as it blends well with other oils while contributing its own distinctive note to soaps, deodorants and colognes.

The steam-distilled oil is white to pale yellowish-green, with a spicy aromatic odour, combining elements of cardamom, sweet marjoram with a camphoraceous slightly bitter, warm and spicy taste. The major components are terpinen-4-ol (up to 45%), gamma-terpinene (up to 25%), 1,8-cineole (3-17%) and limonene (up to 5%) (% not necessarily from the same sample).

Medicine: This oil is mainly used for medicinal and veterinary purposes as a popular antiseptic because of its ability to penetrate unbroken skin.

SERVICES

TREE MANAGEMENT

Seedlings potted when 4-6 weeks old and transplanted at a density of at least 35 000 trees/ha. Irrigation is very important.

Harvesting of leafy twigs starts 15-18 months after establishment and subsequently at 12-15 months intervals. Shoots are cut when less than 2 cm in diameter and at 5-10 cm above soil level.

Yield is about 8-10 t/ha, oil content 1-2%. Wild stands have been regularly harvested for 70 years; plantation life is not yet known.

GERMPLASM MANAGEMENT

PESTS AND DISEASES

FURTHER READNG

Jansen PCM. 1999. Minor essential oil plants. In Oyen, L.P.A. & Nguyen Xuan Dung (Eds.): Plant Resources of South-East Asia. No. 19: Essential-oils plants. Prosea Foundation, Bogor, Indonesia. pp. 179.

Mann CM, Cox SD, Markham JL. 2000. The outer membrane of *Pseudomonas aeruginosa* NCTC 6749 contributes to its tolerance to the essential oil of *Melaleuca alternifolia* (tea tree oil). *Lett Appl Microbiol.* 30(4): 294-7.

Nelson RR. 2000. Selection of resistance to the essential oil of *Melaleuca alternifolia* in *Staphylococcus aureus*. *J Antimicrob Chemother.* 45(4): 549-50.

Pena, E. 1962. *Melaleuca alternifolia* Oil: its use for Trichomonal Vaginitis and Other Vaginal Infections. *Obstetrics and Gynecology.* 19(6): 793-5.

Sherry E, Boeck H, Warnke PH. 2001. Topical application of a new formulation of eucalyptus oil phytochemical clears methicillin-resistant *Staphylococcus aureus* infection. *Am J Infect Control.* 29(5): 346.

Swords G & Hunter GLK. 1978. Composition of Australian Tea-Tree Oil (*Melaleuca alternifolia*). *Journal of Agriculture and Food Chemistry.* 26: 734-9.

Thomas GS. 1992. *Ornamental Shrubs, Climbers and Bamboos.* Murray, Australia.

Zastrow KD, Kramer A. 2002. Therapeutic indications for local anti-infectives. Recommendations for isolation and antiseptic sanitation of patients with MRSA colonization or infection. *Dev Ophthalmol.* 33: 250-62

SUGGESTED CITATION

Orwa C, Mutua A, Kindt R, Jamnadass R, Simons A. 2009. *Agroforestry Database: a tree reference and selection guide version 4.0* (<http://www.worldagroforestry.org/af/treedb/>)