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Melaleuca cajuputi Powel

Schmidt, Lars Holger; Thuy, Le Thi Thu

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Melaleuca cajuputi Powel

Taxonomy and nomenclature:

Family: Myrtaceae

Synonyms: *Myrtus saligna* Burm.f.; *Melaleuca minor* Smith, *Melaleuca leucadendron* (Smith) Duthie.

Vernacular / common names; swamp tea tree (Eng.); punk tree (Am.); kayu putih (Indonesia and Malaysia); Smach chanlos (Khmer); tram (Vietnam).

M. cajuputi is one of 10 species making up the *M. leucadendra* (or *leucadendron*) complex. Three subspecies are recognised: subsp. *cajuputi*, subsp. *cumingiana* (Turcz) Barlow. and subsp. *platyphylla* Barlow. The genus has its main diversity in Australia where a number of species are found. The two most important species for planting are *M. quinquenervia* (Cav.) S.T. Blake and *M. viridiflora* Sol. ex Gaertn. The genus *Melaleuca* is closely related to *Eucalyptus*.

Distribution and habitat

Natural distribution obscured by cultivation. Occurs in tropical SE Asia - Pacific between 18ºS and 12ºN, from northern Australia, SW Papua New Guinea, Indonesia, Malaysia, Thailand, south Cambodia and Vietnam. In Vietnam occurring both in lower Mekong delta and central Vietnam.

Its climatic habitat has mean maximum temperature of 31-33ºC and minimum of the coldest month 17-22ºC, average annual rainfall is between 1300 and 2000 mm with strong monsoon pattern. Mainly found in low swampy and regularly flooded coastal plains, often behind the true mangrove zone where it may form pure stands or mixed stands with e.g. *Barringtonia*. Most competitive and thus mostly found on poor, periodically waterlogged, poorly drained acidic soil (pH < 4) such as alluvial clay, acid sulphate - peat swamp forests / fresh water mangroves. It is quite fire resistant and tolerant to some salt spray but cannot grow in salty water. Although often growing on poor sites, its growth is faster and its form better on richer sites e.g. with shorter inundation period and higher pH.

Uses

The wood is hard and heavy. It is used as general purpose construction wood, mostly as roundwood for poles and posts. The species also yields an essential oil, known as 'melaleuca' or 'cajuput', which is used both in medicine and cosmetics. As a very strong pioneer on brackish soil and acid sulphate soil it is frequently used for environmental rehabilitation on these sites.

Botanical description

Evergreen tree or scrub, usually < 20 m high but very old individuals of up to 40 m have been found. Usually single stemmed. Bark white or light grey, layered, fibrous and papery and often flaking off in large rolls. Crown dense with a silvery appearance due to the light branches. Young shoots densely silky hairy. Leaves alternate, silky hairy to glabrescent. Flowers sessile in dense stands with woody calyx base, which persists as part of the fruit. Stamens numerous, united into 5 bundles opposite the calyx lobes. Ovary inferior.

1, flowering and fruiting branch; 2, flower; 3, longitudinal section through flower. From: Plant Resources of SE Asia.

Fruit and seed description

Fruit: dehiscent capsules in dense infructescences. Each capsule is sub-globose, 3-4 mm in diameter, opening by 3 pores, with numerous seed.

Seed: very small and round. About 2 mill/kg (Dorand & Turnbull).

Flowering and fruiting habit

Hermaphroditic. Pollination by insects. The tree starts flowering and fruiting at 5-7 years of age. Flowering and fruiting season often long, in southern Vietnam flowering from June to October and fruiting from December to June; however, flowers and fruits can often be found throughout the year.

Harvest

Harvest and processing mostly like eucalypts. Seeds are tiny and must be collected before the fruits open. Easiest way of harvesting is by cutting off the fruit bearing branches either by using long handled pruners or by climbing. Leaves occurring above the infructescence are removed. Foliage is removed from the infructescence before processing. The infructescences are air dried until the fruits open. Seeds are usually easily released by shaking or light beating of the branchlets on the drying trays.

Processing and handling

The tiny seeds are easiest cleaned by removing larger materials (branchlets) by hand and smaller impurities by sifting. It is difficult to remove seed-size impurities and empty seed (chaff) without losing viable seeds.

Storage and viability

Seeds are orthodox and small. They can be stored at low moisture content (<5%) in dry hermetically sealed bags or glasses and maintain viability for several years. Tests at the Australian Tree Seed Centre showed a reduction in viability from 100% to 90-95% after 5 years at 18-22ºC.

Dormancy and pretreatment

Seeds are non-dormant and need no pretreatment.

Sowing and germination

During seed testing seeds are sown on moist filter / tissue paper in light and will usually germinate within 3 days. In the nursery seeds are sown in seedbeds and covered with a very thin layer of soil, or mixed with sand and spread on top of the seedbed. The seeds are very light sensitive and will not germinate or grow in shade. Germination is usually only 30-40% due to many empty seeds. The tiny seedlings are sensitive to desiccation and to strong watering, both artificially and by heavy direct rain. After germination seedlings are transplanted into pots, nursery period is from 3 to 6 months.

Melaleuca cajuputi. Phu Quoc Island, Vietnam.
Photo: Lars Schmidt

Vegetative propagation

Coppice ability is very good. Both rooting of cuttings and tissue culture propagation appear to be easy.

Selected readings

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THIS NOTE WAS PREPARED IN COLLABORATION WITH VIETNAM TREE SEED PROJECT

Authors: Lars Schmidt, *Forest & Landscape Denmark.*
Le Thi Thu Thuy, Forest Seed Enterprise,
Ho Chi Minh City, Vietnam

Forest & Landscape Denmark
Hørsholm Kongevej 11
DK-2970 Hørsholm
Denmark

Phone: +45-35281503
Fax: +45-35281517
Email: SL-International@kvl.dk
Website: www.SL.kvl.dk