Canarium indicum

L.

Burseraceae

LOCAL NAMES
English (red canariun,pili nut,java almond,canarium nut); French (noix de kanari,la nangaile); Indonesian (lawele,galip); Malay (upi,seladah,kerantai); Tamil (rata kekuna)

BOTANIC DESCRIPTION
Canarium indicum is an evergreen, dioecious, medium-sized to fairly large tree to 40 m tall and a diameter of up to 100 cm. The crown is large, dense crown and buttresses are upto m high. The bark is grey or brownish-grey to yellow-brown, smooth to scaly and dippled; inner bark laminated, reddish-brown to pinkish-brown, exuding a milky resin.

Leaves imparipinnate, arranged spirally with 7-15 opposite leaflets; leaflets oblong, 13.5-36 by 4.4-21 cm, base rounded and slightly asymmetrical, apex acuminate, margin entire, glabrous; petiole 9 cm long. The stipule ovate to oblong, persistent, large and prominently dentate, rarely inserted on the petiole.

Inflorescence terminal or axillary, broadly paniculate, 15-30 cm long; flowers numerous, creamy white, 3 merous; male flower 10 mm long, stamens 6, female ones up to 15 mm long.

Fruit blue-black drupe, 35-60 mm by 15-30 mm, endocarp hard, thin and brittle, ovoid, circular to slightly triangular in cross-section, glabrous, and in groups of 6-12.

Seeds brown, 3.5 by 2 cm, oily, palmatifid to 3 foliolate and variously folded cotyledons.

The family Burseraceae consists of 16 genera and about 550 species in the tropical regions of both hemispheres. The genus Canarium (derived from the Malay name ‘kanari’, the local name for one of the species), contains about 75 species of trees which are mainly found in tropical Asia and the Pacific, and a few species in tropical Africa.

BIOLOGY
The trees flower mainly in the dry season and fruit during the wet season. In Vanuatu, fruits ripen between October and March. In New Britain fruiting occurs twice annually, between August and November and then again from April to May. Insects probably effect pollination. The fruits are dispersed by fruit-eating pigeons, wild pigs, rodents and monkeys, and are occasionally eaten and dispersed by bats. Humans gather the fallen fruits and seeds, and may thus be considered a constraint to the successful dispersal of the species, significantly reducing the natural stand of seedlings in communities and forests

Mature kernels-in-testa (French B)

Immature fruit on tree (close up) (French B)

Canarium indicum leaves (French B)

ECOLOGY
C. indicum occurs in primary and secondary rain forest on both well drained and poorly drained sites but is uncommon in grasslands.

BIOPHYSICAL LIMITS
Altitude: 0-930 (-1850) m
Mean annual temperature: 22-29ºC
Mean annual rainfall: 2000-6000 mm
Soil type: C. indicum does not have strict soil requirements, and is known to thrive on a wide range of soil types and over a wide range of climatic conditions but for optimum production deep, fertile and well drained soils are ideal.

DOCUMENTED SPECIES DISTRIBUTION

Native: Cambodia, Indonesia, Laos, Malaysia, Papua New Guinea, Philippines, Thailand, Vanuatu, Vietnam
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
Food: The oily nuts (seeds) are eaten raw or roasted as a dessert after the removal of testa .The fresh seed oil is mixed with food. Nut contains 70-80% oil, 13% protein and 7% starch. The young shoot is edible and can be used in cooking and in making green salads.

Fuel: The resin-rich wood is soft and makes an excellent firewood. The hard, stony shell of the seed is chiefly used in cooking, for which it makes an excellent fuel.

Timber: The wood density is 500-650Kg/m3 at 12% moisture content. The wood is used for light construction, mouldings, house-framing, interior finish and canoes construction.

Gum or resin: A lemon-scented pale yellow resin is collected from incisions made in the bark is used in incense. It is also used as an ingredient in plasters and ointments.

Lipids: Oil extracted from the seeds serves as a substitute for coconut oil for cooking or as an illuminant. Oil distilled from it is an ingredient in perfume and cosmetics.

Medicine: The bark is used in traditional medicine for treatment of vomiting, and the young leaves for the treatment of scabies and ciguatera poisoning.

SERVICES
Shade or shelter: It makes an excellent roadside or avenue and border tree, and a verdant shade tree for lawns.

Boundary or barrier or support: Its remarkable resistance to strong winds makes it a good living windbreak for other crops such as bananas and papayas.

Intercropping: The tree is cultivated in home gardens together with other crops.

TREE MANAGEMENT
C. indicum trees are planted at a spacing of about 9 m in the Solomon Islands. In these plantations trials, the growth rates averaged 2.8 m/year in height and 3 cm/year in diameter. A total of two seedlings should be set in a hole, and all male trees should be cut down as soon as their sex can be determined, leaving only one male tree for every 20-25 female trees.

Little is known about the cultural requirements of the tree. Marcots usually form lateral branches early and do not require training. Seedling, grafted and budded trees initially tend to grow upright and need to be trained at an early age to induce the formation of lateral branches. This is done by pinching off the terminal bud when the tree is about 0.5-1 m tall. This should be done repeatedly on all the subsequent shoots, until the youngest set of shoots becomes reproductive, a process that may take 5-6 years. Once the tree starts fruiting, very little pruning is necessary.

Mature trees yield at least 100 kg/year of fruits when open grown and under plantation conditions they can be expected to yield 7700 kg/ha of fruits annually (the kernels account for about 15% of the total weight)

PESTS AND DISEASES
Anthracnose of young seedlings has been observed but fungicides control it. Trees are badly damaged by Amblypelta cocophaga (shoot feeding bug) leading to serious shoot dieback.

FURTHER READNG

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SUGGESTED CITATION

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