

LOCAL NAMES

English (petroleum nut tree); Filipino (hanga, apisang, abkol, abkel)

BOTANIC DESCRIPTION

Petroleum nut tree is an aromatic tree to 30 m tall, but probably smaller in its forest habitats (perhaps even epiphytic); fruiting when only 6–12 m tall.

Leaves aromatic, coriaceous, entire (possibly evergreen), thickest above the middle, pinnately nerved, with a short acumen at the tip.

Flowers are fragrant, white, clustered on the stems.

Fruits average 25 mm in diameter (12–43). Each fruit has 5–72 seeds (average 31)

Seeds range from 1–40 mm, averaging 3 mm, are about as close to hexahedral and prismatic, being quite angular, black to blackish gold, often still surrounded by a gummy or resinous endocarp.

The English name petroleum nut tree alludes to the fancied resemblance of the odor of the fruit's oil to that of petroleum, the fruits, even green ones burn brilliantly when ignited.

ECOLOGY

Endemic to the Philippines, petroleum nut tree is reported to range from 600–2400 m elevation, usually in elfin or Benguet Pine Forest. Ranging from Tropical Dry to Moist through Subtropical Forest Life Zones, this tree grows where the annual precipitation ranges from 1500 mm to more than 5000 mm (mean of 36 cases = 27 dm), annual temperature from 18–28°C.

BIOPHYSICAL LIMITS

Altitude range: 600-2400 m

Mean annual Temperature: 18-28°C

Mean annual rainfall: 1500-5000 mm

DOCUMENTED SPECIES DISTRIBUTION

Native: Philippines

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

Fuel: This tree produces a high octane oil that can directly be used as fuel. During the Second World War, the Japanese used it to power their tanks, though the tribal people of the Philippines have long appreciated it as a fuel for lamps. The oil is pressed from the nuts or seeds of the tree. It is reported that six trees would produce 320 litres of oil per year. The oil is quite sticky and rapidly turns resinous when laid thin. In an open dish, it burns strongly, although with a sooty flame.

Medicine: Fruit is used as a panacea by Philippine traditionalists, especially, however, for abdominal pain. The oleoresin is used to treat muscular pains and skin diseases). The nut decoction is used for colds. Crushed nuts are mixed with coconut oil as a relief for myalgia.

SERVICES

Intercropping: In the Philippines, the integration of hanga into a taungya land-use system was carried out from 1983, on an experimental basis, where the cultivated rows of plots were planted to Pechay (*Brassica chinensis*), gabi (*Colocasia esculenta*) and gabuio beans (*Phaseolus vulgaris*). It was found that after 3 years, the hanga crown area was only 1-2 m², not yet causing undesirable shade effects on the crop. This could be projected to another 3 years of successful intercropping. Moreover, it was found that there was no below-ground competition with the intercrops. Intercropping was found to supplement the farmers' income and food needs. For instance in 2 years, the experimental plots yielded per m² , 1 kg of potatoes, 2.7 kg of ginger, 1 kg of chinese pechay and 0.5 kg of baguio beans.

TREE MANAGEMENT

In 1983 in the Philippines, the taungya concept was adopted in the establishment of hanga plantations in the experimental area of west central Luzon Forest Research Centre (WCLFRC) in Laoakan, Baguio city. The rows were spaced at 2 x 2 m. It was found that there were accrued beneficial effects of managing hanga under the taungya system. Trees in the cultivated fields were found to have acquired 2.26 m total height growth per year, compared to only 0.95 m for trees in uncultivated plots. This was attributed to soil tillage, which improved water infiltration and root development of the trees. Overhead irrigation in the dry season and weeding out undesirable competition are other cultural practices that enhance the establishment of the plantations.

FURTHER READING

James A. Duke. 1983. Handbook of Energy Crops. unpublished

Lewington Anna. 2003. Plants for people. Eden Project Books.

Penafiel SR. 1987. Taungya Scheme increases growth of hanga. Canopy International. 13(3):9-10

SUGGESTED CITATION

Orwa C, A Mutua, Kindt R , Jamnadass R, S Anthony. 2009 Agroforestry Database:a tree reference and selection guide version 4.0 (<http://www.worldagroforestry.org/sites/treedbs/treedatabases.asp>)