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ARENKA PINNATA & ITS USES



THE SUGARY JUICE

- Can be made into healthy palm sugar
- Which can be made into a healthy facial scrub
- Can be fermented and made into palmwine
- Can be distilled to become an alcoholic drink
- Can be made into pure ethanol for fuel
- The yeast can be used to make bread, or cattle feed or an organic fertilizer
- Can be used as a laxative
- Can be made into a high quality vinegar



LATIN SYNONYMS OF ARENGA PINNATA

- *Arenga gamuto*, *Arenga saccharifera*, *Saguerus gamuto*, *Saguerus pinnatus*, *Saguerus rumphii*

ARENKA PINNATA IS ALSO KNOWN AS:

- Philippines: Kaong, Irok,
- English: (Black) Sugar Palm, Gomuti Palm, Arenga Palm
- German: Zuckerpalm
- Indonesian: Aren, Enau, Seho, Akel, Ejow, Gomuti, Kaong, Kawung

ARENGA PINNATA AND WATER

- The Philippine village of Indang has abundant good water in its valley thanks to the many sugar palms they maintain for vinegar production in earthen pots
- As a C4 tree it uses less water, so more remains for its watershed
- Its deep roots and litter help slow the release of water from its forest, preventing both flooding and fast drying out of rivers
- Its deep roots protect the soil from erosion. Its natural habitat is steep slopes and land slides

Picture by: Mike Gray, PACSOA



Sugar palms growing on very steep slopes and former land slides, their natural habitat

SEEDS OF ARENGA PINNATA:

- Are used for the production of sweet meat (Kolang-Kaling) for various recipes
- To feed pigs, and when treated, other live stock
- Are said to be distributed by *Paradoxorus hermaphroditus* & *Paradoxorus philipinensis*
- Are sometimes used as toys by children
- Can be carved into hard handicraft
- Can be stored as food reserve for years

THE PEELS OF THE FRUITS

- Their peels with calcium oxalate needles are used as defense or attack against humans
- Are sometimes dispersed around fish ponds to keep bare foot thieves away
- In the past the peels, more popularly known as "kaong" were used by the Katipuneros of Cavite during the Spanish revolution to ward off the Spaniards by throwing them at the Spaniards which would cause extreme itchiness
- The city of Surabaya fell because the enemy threw the peels in the river and drinking water of the city making water unusable because of throat swelling

SUGAR PALM FIBRES:

- Also known as Gumati, Gomoetoe, Ijuk, Arenga fibre,
- One of the hardest wearing natural fibres

EARLY REPORTS ON SUGAR PALM CULTIVATION

- According to a report from China, the sugar and fibre industries were established in Malaysia in 1416
- In 1786 a British settlement was established in Penang, and a fibre industry was formed based on seeds from the spice islands (1)
- The VOC planned large scale Arenga plantations for fibres on the island of Singapore but after the loss of Napoleon, the Dutch handed over Singapore to the English who handed back the Dutch colonies (2)

ANIMALS THAT LIVE ON THE SUGAR PALM

- Cloud rats, Moon rats, various mice species
- Several bat species roost in it
- Frogs and lizards live between the leaves
- Worms and lots of soil insects crawl in the earth between its older leaves
- *Oryctes* and *Rhynchophorus* beetles visit it
- Snakes live in its crown
- Various birds make their nest in the palm
- Ants live in symbioses at the underside of leaves
- Fruit flies and bees frequent its flowers
- Wasps make their nests in it

BREEDING SUGAR PALMS

- Has been done only haphazardly not systematic
- Natural hybrids with other *Arenga spp.* are known
- Has the potential to create clumping sugar palms
- Can increase frost and drought tolerance
- Can increase productivity
- Can select optimally tappable palm trees
- Can select faster leaf producing trees
- Can select other locally adapted cultivars

SUGAR PALMS CAN GROW

- In areas with incidental frost up to -5 degrees C
- On the steepest of slopes, even on land slides
- On all kinds of soils, even temporarily inundated
- In areas frequented by fire and even were seen to survive volcanic eruptions (hot ash)
- And survive even a drought of one year while still producing some sugary juice

OCCURENC: ARENGA PINNATA IS

- Occuring in many countries in South East Asia
- Widely sold as ornamental in various countries
- Is growing a lot in gardens in Florida and the southern parts of the United States
- Is growing in many different botanical gardens and greenhouses around the world
- Has an (unclear) mention as potential invasive species in both Brasil and Tanzania
- But is not invasive in South East Asia and actually considered threatened there
- Has been cultivated on small scale in various locations in South East Asia

BOTANIC DESCRIPTION

Arenga pinnata is a solitary, unarmed, pleonanthic, monoecious feather palm. The bole is solitary, unbranched, except in very rare cases where up to 8 branches form after trauma to its top meristem, always between 2 and 8 m of stem height. The stems usually reach a height of 10-15 m, but with maxima of 28 m, and with a diameter of about 30-40(55) cm. Leaves pinnate, ascending, up to 8.5 m long. Leaflets dark green above and whitish beneath, giving the trees a dirty greenish appearance. The leaf sheaths cover the stem; their margins are fibrous with black hairs. Young leaf sheaths are usually covered on their lower surfaces with an abundance of soft, mosslike white hairs. The first inflorescence arises from a node near the top meristem together with 3-6(12) other inflorescences that only develop the female flowers. After this stage male inflorescences appear in descending order from the uppermost leaf axil underneath the female inflorescences. The top female inflorescences continue to develop for about 2 years until the fruits are ripe and fall over a period of a year after which the palm is exhausted and slowly dies. Each node bears only one inflorescence. Depending upon utilization of the palm through tapping, the ripening can take many more years, resulting in smaller fruits and seeds. In this case the appearance of male inflorescences can continue till the base of the palm before the tree dies. Fruits are yellow when mature, about 5 cm in diameter, with 2-3 seeds each.

LITERATURE

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- (1) Internet info
- (2) Willie's old readings in Dutch literature

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SOME IMPORTANT NOTES

- From sugar palms on many (small and remote) islands we can yield drinking water and food supplies