



# Australia's Tropical Rainforests

WORLD HERITAGE

## F A C T S H E E T

### Bush medicine



Hyoscine is the chemical which achieved sudden notoriety recently when larger than normal doses in Travacalm tablets caused severe illness in a number of people. Interestingly, this chemical is found in a common rainforest tree known as **soft corkwood** (*Duboisia myoporoides*). Indeed, when this tree was hybridised with a closely related species last century the result contained more hyoscine than any other known plant. It was grown commercially to make ophthalmic and sedative drugs, before synthetic versions of the compound were developed. Extracts from the plant dilate the pupil – useful in eye surgery – and during World War II considerable quantities of hyoscine were exported to treat travel sickness in troops and shell shock. In 1989, 500 tonnes of dried and powdered leaves were exported to pharmaceutical companies in Germany and Switzerland.

Soft corkwood is poisonous to stock and has been blamed for at least one human death, in 1987, when a man experimentally ate some leaves. Interestingly, it is closely related to a desert shrub, pituri (*Duboisia hopwoodii*) which was valued as a narcotic and widely traded by Aboriginal people in days gone by.

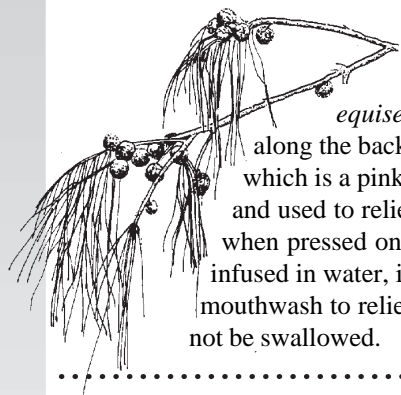
Hyoscine is an **alkaloid**, a group of chemicals which are found in a number of plants and which have a potent effect on the human central nervous system; well-known alkaloids include strychnine, morphine, cocaine and nicotine. Alkaloids in native plants do not seem to have been important as traditional medicines, perhaps because of the difficulty of determining safe doses.

Curiously there is little evidence that Aboriginal people used **tea tree** oil for its powerful anti-fungal and anti-bacterial properties. The species used commercially for this purpose is *Melaleuca alternifolia*, a small tree found in northern New South Wales and southern Queensland. Its germicidal properties were discovered in the 1920s. Cajuput oil is made from the weeping paperbark (*M. leucadendra*) and the cajuput (*M. cajuputi*). In northern Australia, the leaves of several *Melaleuca* species have been used traditionally for treatment of coughs, colds and on sores and burns, either crushed and inhaled or soaked in water to create an infusion. The aromatic oils stimulate cells in the throat to produce more lubricating fluids thus easing irritations which cause coughs.

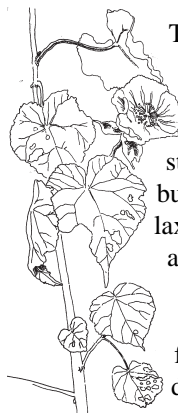


*Barringtonia racemosa* is known as the fish poison tree because chemicals, saponins, in the bark stun fish when put in the water. This tree was also used in India as a fever treatment and is now known to have properties similar to quinine, the anti-malarial drug extracted from South American trees.

**Cycad** plants are very toxic although the seeds were an important traditional food, when properly treated. The seeds of some species, however, contain an antibiotic.

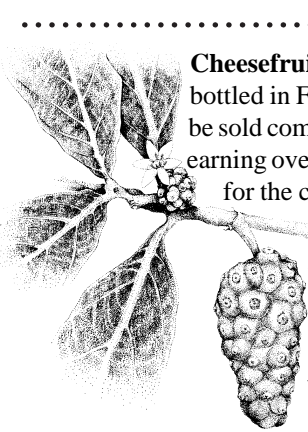


**She oak** (*Casuarina equisetifolia*) grows commonly along the back of beaches. The inner bark, which is a pinkish colour, can be ground up and used to relieve the pain of a toothache when pressed on to the affected tooth. When infused in water, it can be used as a mouthwash to relieve a sore throat – but should not be swallowed.



The large leaves of the **cotton tree** (*Hibiscus tiliaceus*) can be used as dressings on wounds. The leaf is simply heated over the fire and pressed on to the injury until it sticks, stopping the flow of blood. The flower buds of this tree are used in Hawaii as a mild laxative for children. For older children and adults the little white, dome-shaped 'bump' inside the bottom of the flower is used for same purpose. The bark of the stem is used for congested chests and for a mother delivering a baby.

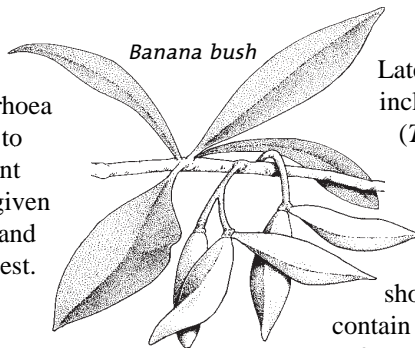
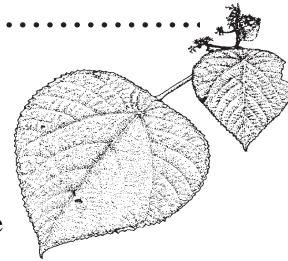
Millions of years in the making. Protected forever.



**Cheesefruit** (*Morinda citrifolia*) is bottled in Fiji and other Pacific Islands to be sold commercially as 'cheese fruit juice', earning over US\$1 billion over five years for the company named after the plant, Morinda Incorporated. The juice is sold as a performance enhancer and antioxidant. Commercial drugs derived from the roots and trunk are used to treat high blood pressure.

The ripe fruit has an unpleasant smell so, not surprisingly perhaps, this is when it is used as a medicine – as a treatment for common cold, 'flu, diarrhoea and asthma as well as for wound treatment. It is said to have a slight anaesthetic effect which provides instant relief for sore throats. Mixed with coconut milk, it is given as a relief from ciguatera in the Torres Strait. Leaves and fruit can be crushed and inhaled or rubbed on the chest. The bark of this tree is used to reduce fever and the leaves as poultices. In Hawaii, where it is known as 'noni', the unripe fruit is pounded with salt and the mixture put on deep cuts. Ripe fruit has also been used as a poultice to draw out pus. Even more claims are made for this plant, but as with most 'magical cures' they have attracted scientific controversy. For more information on this see [www.sgapqld.org.au/bushtucker.html](http://www.sgapqld.org.au/bushtucker.html)

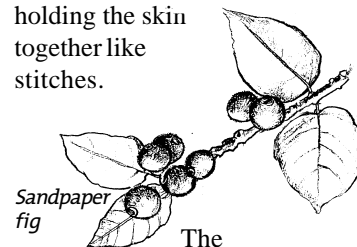
**Stinging trees** (*Dendrocnide* spp) are to be avoided, due to the pain caused by the fine hairs in the leaves. These hairs have cell walls full of silica and contain a sap which acts on the nerve-endings in human skin, causing pain for many months. However, the leaves were used traditionally as a cure for rheumatism. They were applied directly to the affected area, but, perhaps less painful, were sometimes pounded and boiled first.



Latex from a number of plants, including figs and **banana bush** (*Tabernaemontana pandacacui*) (left) has been used traditionally on sores and wounds. Recent studies have shown that these plants contain potent compounds by the name of proteolytic enzymes. There is a

fine line between harmful and helpful chemicals. Latex from many plants can cause blindness. The banana bush is related to the highly poisonous oleander and the 'bananas' are named for their shape, not their edibility. Latex from macaranga (*Macaranga tanarius*) is very

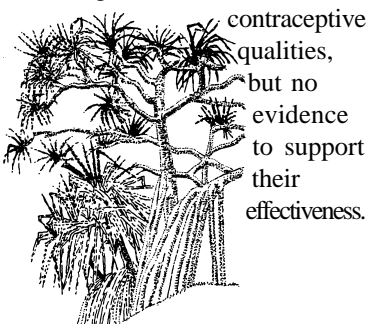
sticky and waterproof. It can be used on deep cuts, holding the skin together like stitches.



The **sandpaper fig** (*Ficus opposita*) has, as the name suggests, leaves which are as rough as sandpaper. They are used, traditionally, to treat fungal skin infections such as ringworm (which is not a worm). The affected skin is abraded with the leaves until quite raw and the area then covered with the milky latex from the plant. Alternatively the area may be covered with a green ants' nest. The stings and the formic acid from the ants are very painful but apparently a very effective cure.



The core of the trunk of certain **pandanus** trees, notably screw palm/pine (*Pandanus spiralis*) was traditionally used for a number of complaints. Pounded and/or boiled, it was particularly used for diarrhoea and stomach pain but also for mouth sores and toothache and to relieve headaches and 'flu. In some cases the pith from the prop roots, which support the main trunk, was used. There are records from Groote Eylandt, in the Northern Territory, of pandanus seeds being consumed for



contraceptive qualities, but no evidence to support their effectiveness.

## Owning the knowledge

An international study found that about three-quarters of plant-based drugs developed by pharmaceutical companies had already been known and used as traditional medicines. When looking for sources of new drugs, pharmaceutical companies often rely on indigenous knowledge – it saves a lot of time. Having found an organism, the companies must break it down into its various components and search for the one which is active. This may then be made into a drug. This process can be time-consuming and expensive. Nevertheless, in the end it is usually only the drug company which makes the profit – sometimes enormous – while the people who made the initial discoveries gain nothing. The company may even take out a patent on the plant in question and it is not unknown for the traditional owners to be then charged a royalty for using it. Referred to as biopiracy, this trend is on the rise as companies increasingly take out patents on organisms, some of them common traditional food and medicine plants. See <http://twm.co.nz/CptHook.htm> for more information.

An ABC Radio National Background Briefing program on October 13 2002 looked at the problems associated with bioprospecting and indigenous rights. A transcript of the program can be found on [www.abc.net.au/rn/talks/bbing/stories/s701553.htm](http://www.abc.net.au/rn/talks/bbing/stories/s701553.htm)

