

Uses of some common native species— a beginner's guide to ethnobotany

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Ethnobotany is the study of the ways in which we use plants. This can be obvious things like which plants we eat, which are used for medicinal purposes and how we go about preparing them. It also includes such things as which plants are good for starting fires and what burns well once the fire is lit, the plants used for weaving and decorative purposes, and plants used for such diverse things as tattooing and building. The purpose of this article is to give a taste of some of the applications found for New Zealand's native plants, both by Māori and by other explorers and settlers. It is interesting to note that pre-European medicinal uses mostly related to digestive and skin problems, but after European settlement the range of medicinal uses extended considerably to cover the new diseases introduced by the settlers.

Information for this article was researched from four main sources, which are listed in the reference section. Material found or confirmed from elsewhere is acknowledged in the text.

Akeake (*Dodonaea viscosa*)

This small tree is native to New Zealand and also widespread in tropical and subtropical regions. While it has various medicinal uses in other places, and seems particularly effective for toothache and rheumatism, Māori do not appear to have made use of these properties. Akeake has very hard wood, however, so was useful for weapons (patu and mere, taiaha and hani), walking sticks and digging sticks.

Harakeke (*Phormium* species), also known as flax

Flax is one of the few native plants to have been commercially exploited. There was an industry around exporting flax fibre. Māori were sophisticated weavers of flax, a necessary skill in the cooler climate they found themselves in. As flax was very important, there were prescribed practices and rituals around its planting and harvesting, designed to keep the plants healthy and productive, and to imbue the people with a proper respect for the plant and craft. Weaving uses included nets, cloaks, clothing, baskets, sleeping mats, sandals, ropes, fish traps and fishing lines. If no suitable flax was available locally it was cultivated close to a village. Māori had 70 different named varieties with different uses, though some of these would be duplications or

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regional names for the same variety.

There were many medicinal uses. The roots were a strong purgative, and were effective in expelling intestinal parasites; when roasted and pulped they could be applied to tumours and abscesses. They were also applied to ringworm, and to skin to prevent chafing; roasted roots were chewed for treatment of costiveness (constipation). Leaves were used for bandages and for splinting, and the bigger flat leaf bases made good splints. Leaves were also used for tying off the umbilical cord. For toothache, a drop of juice from a freshly cut leaf was dropped into the cavity. This was reportedly painful but would seal the hole. Alternatively juice from the roots was dropped in the ear nearest to the sore tooth: “the second drop would take your breath away but the ache would go, never to return”. Juice from boiled leaves was a remedy for hangovers: “bitter but very effective”. A decoction from the roots was an excellent disinfectant and had healing properties when applied to wounds. It also was probably used for abortion. It has styptic and antiseptic properties. Gum from young shoots was applied to burns, wounds and sores, and was swallowed for diarrhoea. Leaf bases were scraped and juice squeezed from them was used for the relief of sciatica and rheumatism. Flower stalks were burnt to charcoal, pounded, and applied to burns, which healed without scarring. An extract of the root was used by European settlers for chilblains, and as a mouthwash. The juice was used for gonorrhoea, though this would have been post-European.

Pre-European Māori remedies were mostly external, and the arrival of Europeans brought many new diseases as well as a more sophisticated approach to medicine, and a new appreciation of the possible uses of the native flora. However, raw leaves and roots of flax are poisonous, and roots are extremely purgative—do not try this at home! Food uses included the nectar being collected and used to sweeten other foods, often the meal from the root and stem of the cabbage tree and the bracken fern root. The gum found at the bases of the leaves could also be eaten, and reportedly coffee can be made from the seeds.

Kahikatea (*Dacrycarpus dacrydioides*)

Fruits (koroi) were a valued food source, collected either by spreading mats under the tree or by climbing the tree and picking the fruit. The red aril supporting the seed was the part eaten. The soot was used in tattooing. Kahikatea (also ngaio and karaka) were planted over the navel string (umbilical cord) when it detached from a baby, and were said to contain the spirit of the child. It was also used (along with other ingredients) in an infusion to treat bruises, and taken internally as a tonic; the gum was used for chewing, similar to that of kauri. Kahikatea was also valued for

its timber and for its associated bird life. The timber was used for building of waka, though tōtara was preferred. Europeans also used the timber for boat building, and, as it is odourless, for butter boxes for export (Te Papa website).

Karaka (*Corynocarpus laevigatus*)

Karaka was an important food source for Māori, who planted them in many places where they settled; it is now hard to know what the original distribution of this tree was, and in some places it is considered a weed. As a food it should be treated with extreme caution—don't try this at home! The raw flesh of the ripe berry was eaten, and the kernel was also eaten after considerable processing; the raw kernels are extremely poisonous. There are numerous versions of the treatment for making kernels ready for eating, usually involving a period of boiling followed by extended rinsing. Getting it wrong could result in permanent paralysis and physical distortion. Treatment involved gagging the patient, rolling them in mats and burying them up to their chin while forcing water down their throat. The leaves were applied to wounds, with the upper surface to the wound. A decoction was made from karaka and ngaio leaves for use as a wash to relieve pain.

Kauri (*Agathis australis*)

This was a valuable timber tree, used by Māori for waka and by Europeans for boats and other construction; it is still valued for wood turning and cabinetry. Swamp kauri is timber recovered from swamps and has a different appearance, much valued for wood turning. There were various uses for the resin; it was mixed with pūhā (*Sonchus oleraceus*) juice to make it pliable enough to chew, and could also be used as an ingredient for taking dental impressions. It could be scraped to a powder and applied with olive oil to burns. Kauri was one of many species used in tattooing. The soot from burnt wood or resin supplied the pigment, which was rubbed into incisions. Tattooing was for ornamentation but also to deaden the skin against cold; so as clothing increased, less of the body tended to be tattooed, usually just the face. Other uses for the resin were production of varnishes, for lighting fires and as torches.

Kawakawa (*Macropiper excelsum*)

The berries were eaten, and used to flavour a kind of jelly made from seaweed; the seeds must be removed as they are very peppery. A tea could be made from the leaves; it was a diuretic. An infusion of the leaves was used for asthma, bronchitis and other chest complaints. It was taken as a blood purifier and general tonic. The juice makes a strong and intoxicating liquor. It was also used for flavouring beer. The leaves could be crushed and rubbed

on the skin as an insect repellent; leaves were burnt inside a house to kill mosquitoes, but too much smoke could knock out the occupants as well. It was a very effective treatment for cuts, wounds and skin disorders; it was also used as a treatment for stomach complaints and gonorrhoea. The leaves and berries were chewed as a remedy for toothache. The roots were chewed for urinary complaints and dysentery; it was useful as an anthelmintic (de-wormer). Boiled with ongaonga bark it was used internally and externally for eczema and gonorrhoea. It was considered a mild aphrodisiac. Leprosy was treated with kawakawa steam baths.

Kōkihi (*Tetragonia implexicoma*, *T. tetragonioides*), also known as New Zealand spinach (Fig. 1)

Tetragonia tetragonioides is also native to Australia, Japan, South America and the Pacific Islands. Both species are edible, with usually the leaves of young plants being eaten boiled; older plants tend to be bitter. Māori do not seem to have eaten this plant, but Captain Cook tried it on his crew in the interests of scurvy prevention, and it is cultivated as a vegetable in various parts of the world. However, as it contains high levels of oxalic acid it should not be eaten in large quantities unless boiled. The red juice of the berries was tried as a dye for tattooing, but fades after a few years.



Figure 1. Kōkihi, New Zealand spinach, *Tetragonia implexicoma*, *T. tetragonioides*.

Kūmarahou (*Pomaderris kumerahou*), also known as gumdigger's soap

Strangely enough, this was used by gumdiggers as a soap. The flowers were rubbed between the hands with a little water, and produced a lather. The leaves were used as a substitute for hops in making beer; it has a bitter taste. Water from boiled flower heads was used for skin irritations. Leaves were boiled in water and the liquid drunk to relieve coughs and colds. This was also supposed to be good for rheumatism and asthma, and tuberculosis. It was used as a blood purifier and gentle purgative, for "bladder troubles", arthritis, and as a general tonic.

Mamaku (*Cyathea medullaris*)

The pith of the root and lower stem was roasted for food. The inner part of the young frond stem and uncurled new shoots could also be eaten after the scales were removed. Medicinal uses included bruised pith being applied as a poultice to swellings of the foot, and to sore eyes; also to wounds, and saddle sores on horses. Scraped young fronds were used for drawing boils, and the gum was useful for diarrhoea. Young coiled shoots were boiled and the liquid drunk to assist in removal of the afterbirth.

Mānuka (*Leptospermum scoparium*) (Fig. 2)

Used by Captain Cook with rimu to make a beer, and he also made tea with it. Early settlers sometimes smoked the bark and leaves as a substitute for tobacco. Medicinal uses included as a febrifuge (to reduce a fever); a decoction of mānuka was given for bites from the katipo spider; an infusion of the leaves was “peculiarly serviceable to persons in a reduced state whose previous moralities would not admit of the strictest investigation”. This was also taken for urinary and other internal complaints. An infusion of the bark was used as a sedative. The capsules were chewed or boiled as a cure for dysentery and diarrhoea. Young shoots were boiled as a cure for rheumatism, with the affected part being immersed in the water as hot as possible. The white gum which forms on the trunk has a sweetish taste and was sometimes given to babies as a gentle laxative. It was also applied to burns and scalds, and was taken by adults to allay coughing. Mānuka today is still used medicinally as tea-tree oil, which many people swear by for all sorts of complaints. Mānuka also makes a dark and strongly flavoured honey, and is often used for firewood. Other uses included making feeding implements, canoe deckings and poles, fish hooks, fishing rods and traps, gardening tools and weapons such as spears and lances. The sawdust is often used for smoking fish and shellfish. Smoke from a fire made with green mānuka branches and leaves could be used to drive lice out of woven flax clothing.



Figure 2. Mānuka, *Leptospermum scoparium*.

Ngaio (*Myoporum laetum*)

This species had medicinal uses. An infusion of the leaves was rubbed on the skin as an insect repellent. The bark was used to heal ulcers and skin eruptions, and the leaves were used to stop itching. The leaves, crushed and warmed, were also used for 'drawing' septic wounds. The inner bark was chewed as a remedy for toothache. Other internal uses included cures for diarrhoea, venereal disease and leprosy, and also for mussel poisoning. Ngaio trees were planted over the umbilical cord of a baby. The fruit was sometimes eaten but contains a toxin which causes liver damage. Water steeped in ngaio leaves was used to give a shine to hair, and to help remove dandruff.

Nikau (*Rhopalostylis sapida*)

This was a food source. The immature flowers and the young berries (when still green) were eaten. The heart in the centre of the leaf sheaths was also edible but this was not usually taken as its removal would kill the plant. The leaves were used as a thatch for houses, and were also used for weaving. The sheath from the leaf base could be used as a splint. The pith was used as a laxative, and also to facilitate labour.

Ongaonga (*Urtica ferox*), also known as tree nettle (Fig. 3)

Tree nettle leaves are said to be edible if cooked, but most would not consider it worth the risk. This plant has poisonous stinging hairs all over it and especially on the leaves; contact results in a painful sting and extensive contact can cause severe illness or death. The bark, boiled with kawakawa was used internally and externally as a treatment for eczema and gonorrhoea.



Figure 3. Ongaonga, tree nettle, *Urtica ferox*.

Pīngao (*Ficinia spiralis*), was *Desmoschoenus spiralis* (Fig. 4)

The leaves dry to a bright yellow colour and were valued for weaving. They were used in decorative panels in houses, and in woven belts, garments, baskets and hats. This species is also used for conservation purposes, as a dune stabilising plant. While pīngao was once found around the coast throughout the country, it has now become scarce due to extensive introduction of marram grass for stabilising dunes. Moriori, from the Chatham Islands, had some ceremonial uses, and the growing shoots are said to be edible but were not widely eaten by Māori.



Figure 4. Pīngao, *Ficinia spiralis* (*Desmoschoenus spiralis*).

Rimu (*Dacrydium cupressinum*)

The red fleshy cup that holds the seed was eaten by Māori, though collecting them was a hazardous undertaking. The wood was used to make adze shafts, emergency torches (from branches) and better ones from heartwood, sacred combs, and occasionally waka. Captain Cook brewed a beer from the leaves and young branches. It was very astringent, and was improved by the addition of an equal amount of mānuka. It was reputedly good against scurvy, and “esteemed by everyone on board”. Medicinal uses were varied: the bark was infused to heal ulcers and burns; Europeans tried the sap as a hair restorer, although history does not relate with what results; rimu charcoal was another ingredient in the tattooing process; resinous heartwood was pounded into pulverised fibre and used as a tooth powder;

inner bark was used to stop bleeding. The gum was dissolved in water and taken internally for stomach disorders, headache and internal bleeding.

Tānekaha (*Phyllocladus trichomanoides*)

Bark was used for tanning nets, and to make a dye. It was cut and beaten, then placed in cold water along with flax or other fibre to be dyed. Then hot stones were added to boil the water until the fibre was dyed. Whalebone could also be dyed by this process. The colour was reddish-brown, and could be changed by the addition of other species. It was very colourfast. The leaves represented the spirit of Tane, and so were used to line the graves of the dead. Medicinal uses included burns, boils, abscesses and infections; tannic acid from the bark was an astringent used for dysentery and internal haemorrhage; and also as an abortive and for the relief of menstrual pain. The leaves were used for scrofulous diseases. It was also used as a scent. Other uses included walking sticks, whistle flutes, and war trumpets. The tannin in the bark was used to fill impurities in waka (which were submerged while containing tānekaha bark and left for a month).

Taramea (*Aciphylla colensoi*, *A. squarrosa*), also known as speargrass

While it looks fierce, this plant is a member of the carrot family and very palatable if you can get past the spines! The roots were eaten and also the young shoots. The resin was chewed as a gum, and was also used as a perfume. This was highly prized and used for barter.

Tī, tī kōuka (*Cordyline australis*), also known as cabbage tree

These were a source of food, and of superstitions. Some trees were thought to move around or disappear when approached. Separated umbilical cord was often buried at the base of a young tī tree; it was said if the tree became sick or died the same would happen to the infant. The roots and inner stem were eaten after steaming, and had a high sugar content. The bittersweet flavour caused English missionaries to experiment with making beer from the roots, with some success. Soot was mixed with tī sap and used in tattooing. Pulp and juice from the leaves was used as an ointment for cuts and sores, especially on the hands. It was taken as a laxative, and for “internal complaints”. An innkeeper at Bluff made a species of rum from it, apparently much appreciated by old whalers and sailors. The soft parts of tī leaves could be chewed to keep the bowels regular. Fluid from boiled shoots and leaves was used by nursing mothers, and as a remedy for colic in babies. The dried leaves were woven into a strong five strand plait for hauling waka. They were also used for weaving baskets or kete.

Tōtara (*Podocarpus totara*) (Fig. 5)

Fruits were a source of food, though collecting them involved climbing the tree and either filling baskets or throwing down the ends of the branches; they are reportedly sweet and juicy, though slightly turpentine flavoured. Medicinal uses included using layers of the bark as splints for broken bones; smoke was used to treat skin complaints, venereal disease (post-European), and piles. An extract of the barks of tōtara and mānuka was used to treat fevers. The timber was valuable for building waka (tōtara was the preferred choice for waka), houses, hafts for tools such as adzes, musical instruments and toys. The bark was used for torches and water containers.



Figure 5. Tōtara, *Podocarpus totara*.

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