

# KAWAKAWA



Kawakawa one of New Zealand's most distinctive native plants lives up to this common dictum as a herbal pharmacopaeia with a wide range of health benefits.

The plant is aromatic and is commonly known as the pepper tree.



This presentation will depict the use of kawakawa in traditional and modern herbal medicine. It will explore the biochemical nature of the known pharmacologically active compounds to help explain the wide ranging medicinal uses of this small evergreen shrub-like tree with large heart-shaped leaves.

## Kawakawa: *Piper Excelsum*

Whatever we need to  
heal us, we will find  
growing close by



- *Anti-inflammatory*
- *Analgesic*
- *Urinary Agent*
- *Bronchial Agent*
- *Diaphoretic and circulatory stimulant*
- *Anti-dyspeptic*
- *Psychopharmacological effects*
- *Anthelmintic*
- *Aphrodisiacal*
- *Anti-tumour*
- *Anti-microbial*



### Traditional Uses

The fruit, bark and leaves of the kawakawa all have medicinal properties.

- One of the most important healing herbs used by Maori and still widely used today.
- The leaves were chewed or made into an infusion to treat stomach ailments, bladder problems, the fruits were eaten as a diuretic.
- The leaves are chewed for toothache.
- Externally used to heal cuts, boils, bruises, rheumatism, and nettle stings.
- Leaves and bark are boiled in water and the resulting infusion used for the treatment of skin problems such as eczema.
- Kawakawa's stimulating and rejuvenating properties made a good tonic.



### Modern Uses

Modern uses for kawakawa span the food industry from craft beers, fancy teas and high value food seasonings, to the cosmetic industry and natural health products



## Research

Chris Ryan has demonstrated that a kawakawa aqueous extract has an anti-inflammatory effect by showing a decrease in the inflammatory markers nitric oxide, interleukin – 6 ( **IL-6**) and **tumour necrosis factor alpha (TNF-α)**.

Cytotoxic amides have been isolated from the fruits of kawakawa.

- The main amide was piperchabamide A and this is the first report of this rare compound outside the genus Piper.
- Eleven other amides were purified including two new compounds with the unusual 3,4-dihydro-1(2H)-pyridinyl group.
- The new compounds were fully characterized by 2D NMR spectroscopy, which showed a slow exchange between two rotamers about the amide bond, and they were chemically synthesized.
- In view of the antitumor activity of the related piperlongumine, all of these amides plus four synthetic analogs were tested for cytotoxicity.
- The most active was the piperine homolog piperdardine, with an IC50 of 14 μM against HT 29 colon cancer cells.

In addition to all of this there are numerous scientific studies in New Zealand and around the world investigating the medicinal properties and potential medicinal applications of kawakawa.

One such report by Alistair T. B. Richardson for the New Zealand Institute of Chemistry in 2015 identified the diverse healing potential of the kawakawa.

- **Myristicin**, one of two known bioactive molecules present in kawakawa, is anti-inflammatory, anti-microbial and hepatoprotective. It is also an effective insecticide and known psychoactive.
- **Diayangambin**, another bioactive found in kawakawa, exhibits anti-inflammatory and immunosuppressant properties.
- **Bioactive alkaloids** including piperchabamide A found in kawakawa have known gastroprotective properties.



## Medicinal Uses

## Facts



- Grows to a height of 6 metres
- Commonly found in shady gullies and rocky outcrops in coastal regions.
- Leaves are most often used although fruits, root and bark are also occasionally used.
- The tiny flowers are in upright catkinlike spikes and occur on separate male & female plants. In summer the female spikes ripen to a deep orange.
- The name "Kawakawa" refers to the bitter taste of the leaves.'
- Very little scientific investigation has been undertaken into the pharmacology of Kawakawa to date. Understanding of the actions and uses of this plant are therefore derived largely from information about historical uses in combination with modern day medicinal knowledge.

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