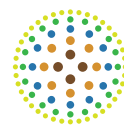


focus on

MOUNTAIN PEPPER

Tasmania lanceolata



RURAL
INDUSTRIES

Research & Development
Corporation

Part of an R&D program managed by the Rural Industries Research and Development Corporation



Overview

Mountain pepper is also commonly referred to as native pepper, Tasmanian pepper, pepperberry and pepperleaf. Both berries and leaves have a hot, spicy and aromatic flavour.

It is typically found in higher rainfall regions of south-east Australia and the majority of production is currently derived from wild-harvested stands on previously cleared land in Victoria and Tasmania. However, there are some small plantations.

Mountain pepper is recognised in Indigenous culture, although details are scarce. It was used early after European settlement as a flavouring ingredient and was identified as having commercial potential in 1804.

Berries are used fresh, air or freeze dried and milled as a spice or flavouring, often as an alternative to 'normal' pepper. The leaf is used dried and milled or as an essential oil extract. It can also be used as an herb, food preservative or therapeutic ingredient.

Mountain pepper is high in antioxidants and also contains vitamin E, zinc, magnesium, calcium and iron.

Mountain pepper

Source: *Defining the Unique Flavours of Australian Native Foods*

Mountain pepper is found naturally in the wet forests and shrublands of south-east Australia, extending, at higher altitudes, as far as the Hastings River catchment in mid-north New South Wales.

It flourishes after the removal of wet forest or rainforest canopies, and wild harvest from several stands on previously cleared land in Tasmania and Victoria supplies most of the current market.

The unreliability of wild fruit production is an issue for the industry - it's not unusual for years with large crops to be interspersed with seasons of negligible fruit set.

There are now some small areas of plantation, although few producers rely solely on mountain pepper for all their farm income. Longer term, sustainable industry growth will necessitate further investment in plantations.

There is considerable diversity among varieties, allowing producers setting up plantations to choose those with characteristics suited to their location or practices. Plants are readily available from native plant specialist nurseries since mountain pepper has a small market as an ornamental shrub.

Investment in harvesting, drying and milling equipment, and the identification of more potential production area, has created an oversupply of leaves. There are still occasional shortages of berries due to the unreliability of production, but this situation is improving every year.

Production capacity is estimated to be around 10 tonnes of dry leaf and six tonnes of dried berry.

FLAVOUR PROFILE

“
...aroma of Australian bushland,
dry paperbark and herbs.
Developing heat on the palate (leaf).
Aroma of bush scrub with **perfumed,
fruity lolly notes.** Lingering heat on
the palate (berry).”

GROWING REGIONS



Growing conditions

Only female plants bear fruit, and there is considerable diversity within the wild population, so the selection of stock for commercial production is important to ensure a suitable mix of male and female plants.

The use of rooted cuttings will ensure more rapid establishment (germination and seedling growth are very slow, and genetic outcomes uncertain) and the opportunity for gender and clonal selection.

Mountain pepper grows best in cool, sheltered environments free from water stress, on neutral to slightly acid soil, preferably well-drained and fertile.

Irrigation is paramount during periods of warm windy weather, which can destroy new foliage and shoots. In some mixed plantations, mountain pepper is grown as a semi-understorey plant to reflect its natural occurrence and provide protection.

Harvesting

In ideal situations, plants will yield fruit and limited quantities of leaf within two to three years. By the time it is five years old it should sustainably produce at least three kilograms of fresh pepper leaf or 1.5 kilograms of fresh berries per year, depending on the season.

Leaves are best harvested between February and the onset of flowering in late September. Harvesting of fresh berries occurs from March through to May.

The leaves are either plucked from the plant or gathered using simple trimming equipment while berries can be plucked or shaken from the bush when ripe.

In the future, it is expected that the establishment of plantation production will lend itself to greater mechanisation of the harvesting process.

Food uses

Fresh mountain pepper leaves on sprig are used as a fresh herb, a garnish or in the manufacture of pastes and purees.

However, the leaf is most commonly dried and milled. Food-service manufacturers use this in a range of prepared foods including relishes, sauces, mustards, cheese, meat seasonings and flour mixes.

Lanceolata, an extract of powdered dried leaf, is added to products as diverse as olive oils and confectionary.

The market is small for fresh or frozen pepper berries.

Most are dried and used as an alternative to 'normal' pepper: whole, as a condiment (in grinders), or milled and blended with other spices to produce novel spice mixes and specialty blends. They are used in cooked or preserved meats, flavoured pastas, pates and cheese.

It is estimated that 20 per cent of leaf production and 60 per cent of pepper berries are exported. Key markets include Germany, France and Switzerland.



Native pepper.

Storage

Fresh pepper berries will retain freshness for several weeks if stored at 1-2oC. Frozen berries are available all year round.

For both the leaf and berries, warm-air drying is commonly used. Like any herb, good air circulation is key to prevent 'stewing' of the leaf; and high residual moisture will allow the development of spoilage bacteria and fungi.

Mountain pepper leaves store best if left un-milled. However, milled leaf powders will retain long term pungency when stored at low temperature and away from direct sunlight; the leaf discolours quickly in the sunlight.

Freeze dried berries are a premium product. They are light, retain natural colour and shape, are highly flavoured and reconstitute well.

Health benefits

Mountain pepper leaf is one of the native species found to exhibit superior antioxidant capacity compared to the blueberry, which is renowned worldwide as the 'health-promoting fruit'.

Antioxidants are believed to hold a number of benefits for human health, potentially preventing and delaying diseases such as Alzheimer's disease, autoimmune and cardiovascular disease, cancer and diabetes.

The leaf also contains vitamin E, lutein (a compound that plays an important role in eye health and wellbeing), zinc, magnesium, calcium and iron.

Other uses

Both mountain pepper leaf and berry contain a hot-tasting terpene compound, polygodial, for which a wide range of biological activity has been demonstrated, including antibacterial, anti-fungal and insect anti-feeding properties.

Mountain pepper is also used as a natural veterinary remedy, although this is largely experimental at this stage.

NUTRITIONAL INFORMATION

| <i>Nutritional values - berry</i> | | | | <i>Nutritional values - leaf</i> | | | |
|--|---------|---|-----------|--|--------|---|-----------|
| <i>(per 100 grams as frozen fruit - D. pruriens)</i> | | <i>(per 100 grams dry weight - D. pruriens)</i> | | <i>(per 100 grams as frozen fruit - D. pruriens)</i> | | <i>(per 100 grams dry weight - D. pruriens)</i> | |
| Energy | 1073 Kj | Zinc (Zn) | 3.500 mg | Energy | 749 Kj | Zinc (Zn) | 6.565 mg |
| H2O | - | Magnesium (Mg) | 142.2 mg | H2O | - | Magnesium (Mg) | 212.1 mg |
| Protein | 4.8 g | Calcium (ca) | 1478 mg | Protein | 7.4 g | Calcium (ca) | 495.1 mg |
| Total fat | 6.7 g | Iron (Fe) | 5.22 mg | Total fat | 4.5 g | Iron (Fe) | 11.35 mg |
| Total saturated fatty acids | 0.6 g | Selenium (Se) | 0.0 | Total saturated fatty acids | 1.5 g | Selenium (Se) | 0.0 |
| Carbohydrates | 24.0 g | Phosphorus (P) | 126.0 mg | Carbohydrates | 2.7 g | Phosphorus (P) | 106.3 mg |
| Sugar (total) | 24.0 g | Sodium (Na) | 27.45 mg | Sugar (total) | 2.5 g | Sodium (Na) | 47.35 mg |
| Fibre | - | Potassium (K) | 1106.8 mg | Fibre | - | Potassium (K) | 837.95 mg |
| | | Manganese (Mn) | 33.8 mg | | | Manganese (Mn) | 0.0 |
| | | Copper (Cu) | 0.847 mg | | | Copper (Cu) | 0.6219 mg |
| | | Molybdenum (Mo) | 2.3 µg | | | Molybdenum (Mo) | 3.3 µg |
| | | K : Na | 40.3 | | | K : Na | 17.7 |

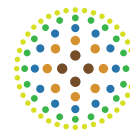


Native pepper.
Credit: Chris Read



For more information

This fact sheet is one of a series summarising Native Foods R&D from 2007 to 2012. In a partnership between government and industry, the Rural Industries Research and Development Corporation (RIRDC) and Australian Native Food Industry Limited (ANFIL) are working towards an innovative, profitable and sustainable Native Foods industry.



RURAL INDUSTRIES
Research & Development Corporation

Australian Native Food Industry Limited (ANFIL) was formed in 2006 and is the peak national body which represents all interests in the rapidly growing Australian native food industry. ANFIL has taken the lead in working with industry, governments and other organisations to determine and prioritise research and market development strategies to progress the industry.

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The Rural Industries Research & Development Corporation (RIRDC) is a statutory authority established to work with industry to invest in research and development for a more profitable, sustainable and dynamic rural sector.

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