HEDGE PANAX

Botanical name: *Polyscias scutellaria* (Araliaceae)

Location specific common names: te toara, te baa mangkongko (Kiribati), lautagitagi (Tuvalu), danidani (Fiji), tagitaki (Samoa), ete (Solomon Islands), dinner plate aralia, cup-leaved papua, bebero, geke, paa, bebenu, kobikobi, momotu

Plant Characteristics: Originating on the Malayan Peninsula, hedge panax is a tall shrub, growing 3-6m high and 2-3m wide, often planted as a hedge. Leaves of specific members of the *Polyscias* genus vary in shape from large, round and shiny to narrow and fernlike.

Uses: The young leaves of hedge panax have the best taste and can be eaten fresh, but mature leaves are usually cooked in stews and soups, ideally with coconut cream to increase carotenoid availability and conversion to vitamin A.
Medicinal: Hedge panax has been traditionally used in Malaysia, Melanesia and elsewhere in the tropics to increase milk production in nursing women. It also has anti-inflammatory effects, and is used to enhance the healing of ulcers and wounds. In the Philippines it is used as a diuretic, and in the Western Pacific its macerated bark is used for the treatment of ciguatera poisoning. Ciguatera is food poisoning caused by a toxin that can accumulate in large reef fish. It can cause nausea, pain, heart and neurological (nerve/brain) symptoms.

Availability: This plant and its related species grow all year in the tropics. It is widespread in the Pacific, mostly in coastal areas, especially on high pH coralline soils. It is common throughout Tuvalu but unevenly distributed in Kiribati, being quite common on Butaritari and South Tarawa (for example, at Teaoraereke and Bikenibeu), but scarce elsewhere.

Propagation methods: Hedge panax is usually grown from stem cuttings, ideally 2-2.5cm in diameter and around 40cm long, but can also be grown from seed. The area around the cuttings should be mulched and watered for the first 3 months to help establishment.

How to grow: Hedge panax prefers high pH soils, i.e. 7.6-8.6, and will grow well on coralline soils with low available iron, copper, manganese, potassium and phosphorus, while other crops such as cassava grow poorly and exhibit pale/yellow leaves (chlorosis) on these soils. This indicates that hedge panax is very efficient for these minerals; in other words, it is able to carry out photosynthesis and other physiological processes satisfactorily, using lower levels of these nutrients than most other plants.

Threats: Pink wax scale (*Ceroplastes rubens*) and passion vine mealybug (*Planococcus pacificus*) can cause problems.

Harvesting: Young and older leaves can be harvested on a daily basis. Leaves for food can be collected at the same time as a hedge is trimmed, which helps to keep the hedge tidy.

Post harvest and storage: *Polyscias* leaves, like the other recommended leafy vegetables, should be washed with clean water and stored in a cool, shady place. Ideally, leaves should be eaten within a day of picking, but the large-leafed forms, including *P. scutellaria*, which are quite fibrous, can remain fresh for up to 3 days.

Project findings/nutritional value: Samples were collected in Kiribati, Tuvalu and Solomon Islands (Guadalcanal and Santa Ysabel). Hedge panax was consistently among the best of the leaf samples for accumulation of zinc, on average second to leaves of cassava, a renowned zinc accumulator, and was also high in calcium compared to most leafy vegetables. About two handfuls (100 grams) per person for a meal serving will provide useful nutrition. It is worth noting that while cassava is outstanding at extracting zinc from high-pH soils, it is much less successful at extracting iron from these soils and is hence susceptible to iron deficiency on calcareous soils above about pH (in water) 8.0.

Hedge panax is strong in:

Zinc: Important for immunity, growth, carbohydrate metabolism, and DNA and protein formation. Humans have around 600 different Zn-containing enzymes/proteins.

Calcium: The most important mineral for the growth and maintenance of bones and teeth. Calcium is also important for cellular physiology.

This table compares selected mineral nutrients and carotenoids in leaves of hedge panax (average of three varieties), cassava (average of two varieties) and *Ficus copiosa* (sandpaper cabbage) grown together on high pH soil on Ta-wa'ahi Island, Marau, Guadalcanal, Solomon Islands in 2012 and English cabbage (average of samples bought from Honiara market, Solomon Islands and Nukualofa market, Tonga in 2012) (concentration in mg/kg dry weight, except N: % dry weight).

	Fe	B	Cu	Zn	Ca	Mg	K	N %	lutein	alpha carotene	beta carotene
Hedge panax	31	45	7	**92**	**27000**	6800	18000	2.6	250	30	74
Cassava	35	**85**	7	**67**	**20100**	6200	11400	3.6	**310**	1	175
Ficus	28	44	6	28	**23500**	4100	20000	2.3	**290**	24	72
Cabbage	40	12	2	20	5700	1450	**29000**	2.8	5	0	2

Fe: iron; B: boron; Cu: copper; Zn: zinc; Ca: calcium; Mg: magnesium; K: potassium; N: nitrogen
Analyses conducted by Waite Analytical Services and the Mares Laboratory, University of Adelaide, South Australia

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