

KANGKONG

Botanical name: *Ipomoea aquatica*, *Ipomoea reptans* (Convolvulaceae)

Location specific common names: te kangkong (Kiribati), kangkong (Tuvalu), water spinach, swamp cabbage, aquatic sweet potato.

Plant Characteristics: Under reasonable growing conditions kangkong is a fast growing, vine-like plant that spreads along the ground or water surface, and is reluctant to climb. It is a close relative to sweetpotato but is grown for its succulent growing tips rather than for roots or tubers.

There are two recognized types: the upland type, *Ipomoea reptans*, more common throughout the Pacific and adapted to moist soils and lowland or aquatic kangkong (*Ipomoea aquatica*) which is adapted to flooded conditions.

Uses: Kangkong is best prepared fresh/uncooked. After thorough washing, short succulent tips can be eaten in salads or liquidised for adding to a drink. Slightly older leaves are best cooked by steaming, boiling, frying or baking. Stems, cut into sections, can be used in a stir fry. **Medicinal:** Kangkong is renowned, not only for protecting the liver from toxins, including lead, cadmium, arsenic and carbon tetrachloride, but also for its anti-diabetes effects.

Propagation methods: New plants can be produced from cuttings or seed. Plants grown from seed are usually slower to establish and the quality is less reliable compared with plants derived from cuttings. The seeds should be soaked one day before sowing. Cuttings from 20 to 60 cm long, preferably taken a day or two after harvesting the tip, are the most suitable for propagation. Care with watering is needed until the cuttings are well established. Cuttings can be stored or transported for a few days provided they are kept in the shade, and in a little water, which must be changed often to reduce the possibility of stem rot.

How to grow: Kangkong is not difficult to grow providing the soil is rich in organic matter and water is readily available. It can grow in full sun, preferably with some shade in the afternoon. The main roots require soil to grow but the plant, which has hollow stems, will easily spread over water. Soils of poorer fertility and insufficient water will produce slower growing plants with thinner stems and smaller leaves with a stronger, bitter flavour. Cuttings of three or more nodes should be planted with at least one node under the soil surface. The area around the plant should be kept moist and free of grass and other weeds.

Threats: Pests and diseases do not usually cause problems. Leaf eating insects such as grasshoppers and some caterpillars are occasional pests that may become a problem in drier weather. Leaf miner and mealybug can cause reduced growth and malformed leaves. Healthy planting material and good growing conditions can help reduce the occurrence and impact of these pests.



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Harvesting: Depending on the amount of kangkong being grown and the growing conditions, harvesting can be carried out daily. The tips, usually back to the 3rd newest full leaf, should be neatly picked or cut with a sharp knife. The cut tips can be stood upright in a bucket or container with some clean water. Tips should be harvested in the cooler hours of the day to prevent wilting. Where a tip has been harvested that runner should produce one or more new tips suitable for harvesting in a few days.

Post harvest and storage: Tips should be washed carefully with water of drinking quality or clean seawater. They can be bundled with their stems trimmed and stood upright in a small amount of clean fresh water. They should store for a day or two if covered with a clean plastic bag and kept in a cool location. If placed in an airtight container in a cool room or refrigerator, they can last for up to a week.

Project findings/nutritional value: Samples of kangkong for analysis were collected from Kiribati, northern Queensland, Tonga and Samoa. About three handfuls of fresh vegetable per person for a meal serving will provide useful nutrition.

Kangkong is strong in:

Iron: Important for healthy blood and energy. Iron was the standout mineral in the Kiribati kangkong samples, averaging 68 mg/kg.

Protein: This is important in forming muscle, cell membranes, enzymes, blood components (antibodies, DNA and RNA). The nitrogen analysis here indicates a protein content of around 19%.

This table compares selected mineral nutrients and carotenoids in leaves of kangkong and sweetpotato grown near each other at Lotofaga, Upolu, Samoa 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
Kangkong	75	93	16	17	5500	3500	2900	4.3	373	0	226
Sweet potato	69	53	15	27	5500	4800	2800	3.6	336	6	225
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

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