MALUNGGAY

Scientific Name: Moringa oleifera Lamk
Common Names: Horseradish tree, Drumstick tree
Local names: Kalunggay (Bicolano)
Kamalongan, Malunggay (Bisaya)
Kalamunge (Pampango)
Arunggay, Marunggay (Iluko & Pangasinense)

BOTANICAL DESCRIPTION

The plant is a small tree, 8 m or less in height, with corky bark and soft white wood. The leaves are alternate, usually thrice pinnate, and 25-50 cm long. There are 2-9 leaflets on the ultimate pinnules. These leaflets are thin, ovate to elliptic and 1-2 cm long. The flowers are white and 1.5-2 cm long on spreading panicles. The pod is 15-30 cm long, pendulous, three-angled and has nine ribs. The seeds are three-angled ang winged on the angles.

ADAPTABILITY AND AVAILABILITY

Malunggay is strictly a tropical plant and grows well at lower elevation, both under wet and seasonal conditions. However, it can thrive up to 1,300 m altitude. It can be grown in various soils but thrives best in fertile, well-drained sandy loams. Malunggay is planted throughout the country especially in the Central and Northern provinces.

USES/IMPORTANCE

Malunggay has multiple uses. The young fruits are a good substitute for yardlong bean (*Vigna unguiculata* (L) Walp) often used in curries. Stewed fruits cannot be eaten whole, but the contents are sucked but the valves are thrown away. The leaves and flowers are eaten as cooked vegetable or put in soups. Fried seeds taste like groundnuts.

The leaves and twigs are sometimes used as fodder. An edible oil (ben oil) extracted from the seeds is useful for illumination, cosmetics and lubrication. The bark

yields a coarse fibre suitable for making mats, paper and cordage. The stem produces a gum used in calico printing. The stems are also used as raw material for the production of cellulose pulps for the cellophane and textile industries.

The root bark is used as a condiment or garnish.

Almost all parts of the tree, the leaves and the root bark in particular have medicinal applications. The leaves as poultice are useful in reducing glandular swellings, and a decoction of the roots is used as a rubefacient to the bites of snakes top prevent the poison from spreading. The juice from the roots with milk is also useful as a decoction for hiccups, asthma, gout, lumbago and rheumatism.

The whole tree is often used as fence material, shade tree in home gardens and support for pepper vines.

NUTRIENT VALUE

The edible portion of marketable fruits is about 83%. A 100 g edible fruit contains water (87 g), protein (2.5 g), fat (0.1 g), carbohydrates (3.7 g), ash (2.0 g), fibre (4.8 g), vitamin A 184 IU, vitamin B_1 (0.05 mg), vitamin B_2 (0.07 mg), niacin (0.2 mg), vitamin C (120 mg), Ca (30 mg), P (110 mg) and Fe (5.3 mg). The energy value is 109 kJ/100 g.

The leaves are very rich in vitamin A and calcium. The edible portion amounts to 75% of marketable shoots. A hundred grams of edible leaves contain water (75 g), protein (6.7 g), fat (1.7 g), carbohydrates (13.4 g), ash (2.3 g), fiber (0.9 g), vitamin A (11300) IU, vitamin B_1 (0.06 g), vitamin B_2 (0.05 g), niacin (0.8 g), vitamin C (220 mg), Ca (440 mg), P (70 mg), and Fe (7 mg). The energy is 385 kJ/100 g.

PROPAGATION

The horseradish tree is usually propagated by cuttings but can also be propagated by seed.

CULTURAL PRACTICES

Malunggay cuttings or seedlings are planted before the onset of the rainy season. Commercially, mature cuttings 2 or more cm in diameter and not less than 80 cm in length preferred, as sprouts come out earlier and grow much faster. In preparing the cuttings, the desired branches are cut clean and planted directly in the field at a

depth not more than 30 cm. In some places in the Northern Philippines where it is planted not only for vegetable but also for fencing purposes, cuttings are planted at a

distance of one meter. The ideal distance is 5 m each way to give room for the expansion of the tree top.

Malunggay usually receives little care, apart from watering during initial growth. For good growth and high fruit yield, the application of organic fertilizer during the first year and inorganic nitrogen fertilizer once or twice a year is recommended. Malunggay tolerates drought very well but supplementary irrigation during a long dry season is beneficial. Old and weak branches are pruned out to promote regrowth and regulate the tree shape.

PEST AND DISEASE MANAGEMENT

The main insect pest are aphids, mites and insects that eat the fruit wall. However, the extent of damage is vey minimal as to warrant pest control measures.

HARVESTING AND POSTHARVEST HANDLING

For palatable malunggay vegetable, select tender medium leaves or young leaves. Care must be taken in gathering the leaves to avoid damaging young sprouts and buds. Some people gather young fruits for salad purposes. Fruits harvested in the afternoon are bundled at 50-100 pieces each and brought to the market the following day. The fruits and leaves are wrapped with banana leaves in order to keep them fresh.

FOOD PREPARATION

Malunggay can be cooked with other vegetables and/or into viands including pinakbet, nilaga and even in omelette.

PROSPECTS/OPPURTUNITIES

Malunggay is still underutilized at the moment. Its numerous uses (vegetables, seed oil, fiber, shade, hedge, ornamental, and medicine), easy propagation and pan-tropical cultivation justify more intensive research into biological and economic possibilities. It can also be dehydrated for instant food preparations.