Malabar Spinach *(Basella alba)*

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Introduction

Malabar spinach (*Basella alba*), also known as vine spinach, Ceylon spinach, Indian spinach, and climbing spinach, is a tropical perennial vine native to tropical Asia. Although Malabar spinach is not a true spinach, it is primarily consumed like true spinach (leaves and stems). There are two main varieties of Malabar spinach, one with green stems and leaves (Figure 1), and another variety containing reddish-purple stems (Figure 2). The reddish-purple variety is known as 'Rubra' and sometimes referred to as *Basella rubra* (Hanumappa, 2019). Both varieties of Malabar spinach can be found growing in small agroforestry systems in Guam.

Figure 01. Variety green of Malabar spinach *Basella alba*.
Source: https://www.iplantz.com/plant/203/basella-alba/

Figure 02. variety red of Malabar spinach *Basella alba Rubra*
Source: https://yarrowayfarm.com/shop/red-malabar-spinach-creeper/?v=a98eef2a3105

Growing Malabar spinach

General plant characteristics

Malabar spinach is a fast-growing vine that can grow up to 10 feet long. The green variety consists of oval heart-shaped leaves, while the Rubra variety consists of more rounded heart-shaped leaves. Plants grow best in tropical temperatures ranging from 75-95°F. Malabar spinach performs best in fertile and well-drained soils. Plants thrive under full sunlight where temperature and moisture are adequate (Grant, 2020).). Flowers are white, pink, or red producing fruits that mature from green to red, dark purple, or black containing one seed (Hort, 2011). Seeds from mature fruits can be dried and stored for future plantings.

Propagation and planting

Malabar spinach can be propagated by seeds and stem cuttings. By soaking seeds in water for 1 day, germination usually occurs within 1 month. Seeds can be sown in pots or directly in the ground. Stem cuttings are the preferred method for growing Malabar spinach and are also highly successful. Malabar spinach stem cuttings should be cut just below a growing node. Sections of cuttings should be cut at 5 to -6 inches in length. Cuttings can be grown in pots before transplanting them into the field or directly planted in the ground (Hort, 2011). For commercial growing, recommended plant spacing is 3 feet between rows and 1 foot between plants (Chaurasiya et al., 2021). Plants can be grown without support, but it is recommended that plants grow on trellises for easier harvesting and growth management (Figure 3).

Figure 03. Malabar spinach supported by trellising.
Source: https://homeplaceearth.wordpress.com/category/crops/malabar-spinach/

Plant care and maintenance

Pruning

Constant pruning is recommended for Malabar spinach to keep plants at a desired size. If the plant is not pruned, it can become a weed and quickly take over an area. To prevent unwanted new plants from growing in an area, it is recommended to remove fruits from the field as seeds from fallen fruit germinate easily (Espiritu, 2021).

Irrigation

Malabar spinach grows best when soils are kept moist. Frequent irrigation is needed to maintain soil moisture. Mulching around plants will conserve soil moisture and suppress weeds. Plants are sensitive to dry periods which may cause leaves to turn bitter if not water properly (Espiritu, 2021). Over-watering or saturation of the soil may lead to root problems. During high rain events, watering can be stopped or reduced.

Plant nutrition

When planted in fertile soil, Malabar spinach does well with little fertilizer input. There are several recommendations on fertilizing Malabar spinach plants. One nutrient recommendation is to add 2 lbs/100 sq. ft organic manure and 5lbs/100 sq. ft 10:10:20 (NPK) (Chaurasiya et al., 2021).

Flowering and fruiting

Malabar spinach flowers may be white, red or pink depending on the variety. Plants are known to produce flowers in dry and/or short-day conditions. The fleshy flowers consist of short spikes that emerge on the axis of the leaf (Mahr, 2021).

Common pest and diseases

Common pests known to attack Malabar spinach include snails and nematodes (Qiu and Liu, 2021). Leaf blight is caused by the fungus Alternaria alternata is known to attack Malabar spinach. Another disease known to attack Malabar spinach is fungal leaf spot (Colletotrichum spp.) This disease is more severe in B. rubra than B. alba (Chaurasiya et al., 2021). For proper control measures on plant pests and diseases, please contact the Cooperative Extension and Outreach office of UOG.

Harvest and post-harvest storage

As Malabar spinach is a fast-growing plant, fresh leaves and stems can be harvested within 2 months. Hand harvesting is recommended by cutting the leaves and young stems. To extend shelf life for Malabar spinach, harvested fresh leaves and young stems can be stored in the refrigerator for up to 4 days at 50°F - 60°F with a relative humidity of 70 to 75% (Qiu, and Liu, 2021).

Food and nutrition

The tender leaves and stems of Malabar spinach are typically consumed raw as a salad or cooked in a variety of dishes (Figure 4). Leaves are thick and slimy like okra. Leaves may become bitter when plants flower. Flowers and fruits are edible. Fruits are best consumed when immature as mature fruits are known to be poor in taste. Malabar spinach is a good source of vitamins A and C, and is also a good source of calcium, magnesium, phosphorus, potassium (Qiu, and Liu, 2021).

Figure 04. Malabar spinach as a cooked dish
Source: https://www.pinterest.com/pin/228768856042791768/

Medicinal uses

Malabar spinach is used as a medicine in several countries. In tropical South Asia, the roots are cooked and consumed for treatment of constipation and diarrhea. A paste is made from the leaves and used topically to treat boils, sores, and wounds (Qiu, and Liu, 2021).

Other uses

The 'Rubra' variety, which can consist of reddish-purple veins, stems, and sometimes leaves are used as an ornamental in some landscapes. The mature fruits of Rubra are a good source of natural dyes and can also be used as a food coloring (Qiu, and Liu, 2021).

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