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Agathi – an underutilized vegetable

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Agathi

Botanical name- *Sesbania grandiflora*,

Family- leguminaceae

Chromosome No. (2n) = 24

Introduction:

Agathi generally known as vegetable hummingbird, West Indian pea, Flamingo Bill, Swamp pea Tree bean, agati, or katurai belong to the genus *Sesbania* in the family leguminaceae. Economic and edible parts of agathi are flowers and leaves commonly eaten in the Southern eastern part of Asia pacific.

Area and distribution

Origin of Agathi considered probably in south east region of Asia, such as India, Malaysia, and the Philippines etc.

Its native place varies from Burma to Australia. Agathi plants are found throughout India, particularly in the states of Andhra Pradesh, Tamil Nadu, Kerala, Assam, Gujarat, and West Bengal.

Botanical description

Agathi is a perennial tree that can grow to be either deciduous or evergreen and can reach a height of 10-15 metres. It has a 20-year life cycle. Its roots are heavily nodulated, and in a moist area, some floating roots may form. A few branches can be found on the straight trunk. The leaves are split into pinnates.

The compound's leaflets are oblong. Axial racemes of agathi flowers are white, yellowish, pink, or red in hue. Agathi pods hang vertically, are glabrous and indehiscent, and are 50–60 cm in length.

Nutritive value of agathi

As per the the USDA nutrient database, 100g of agathi flowers having

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Water	91.58gm
Energy	27 kcal
Protein	1.28gm
Fat	.04gm
Ash	.38gm
Carbohydrates	6.73gm
Calcium	18mg
Iron	.84gm
Magnesium	12mg
Phosphorous	30mg
Potassium	184mg
Sodium	15mg
Vitamin C	73mg
Thiamin	.083mg
Riboflavin	.081mg

Varieties

In agathi, no varieties have been found yet, now through systematic breeding programme. But on the basis of the flower colour, agathi can be classified in to four distinct groups, which are given as:

Sita: This group produces white colour flowers

Peeta: this is a yellow flowered strain.

Neela: This group of plants produce blue colour flowers

Lohita: It is a red flowered strain

Among these groups of varieties, white and red flowered groups are used as vegetable and other groups are more popular for their medicinal uses. Red flowered strain is more nutritious than white flowered one due to their high content of phenolic compound

Climate and Soil

Agathi grow best in these area where annual rainfall range between 2,000 to 4,000 mm. It is adapted to the 1,000m mean sea level and with annual temperatures of 22-30ºC. Agathi is frost sensitive and intolerant to extended periods of cool temperatures. It can be grown in different types of soils, including poor and waterlogged soils. It is tolerant of saline and alkaline soils, as well as some acidic soils. Agathi may also be grow in alkaline, saline, poorly drained, less fertile soils. Agathi well adapted to heavy clay soils in India.

Propagation

Agathi propagation mainly done by seeds. It may also be propagated through stem and branch hardwood cuttings. Seeds collection time is best in the month of May and sown for raising of seedlings in nursery. Seed viability of agathi seed is about six months and weight of 1 kg seed contains about 16000 seeds. The seeds are sown shold be in the month of May- June in polythene bags or in nursery beds. The seeds of agathi are germinated in a week. The seedlings of agathi will be become ready for transplanting after in 30 to 45 days of after sowing. The seedlings of agathi should be planted in 30cm 3 size pits.

Sowing and Spacing

Warm weather is best for sowing. soil temperature near about 25°C is needed for proper germination. In subtropical region it is sowing time preferred during November –

December, while in tropical region sowing should be done from between October to January. Seedlings of agathi are planted at 1.5m × 2 m spacing.

Harvesting

Harvesting of agathi leaves for fodder must be done properly at the time, and cannot be harvest more than a few times per year. Leaves, flowers and pods of the agathi plants are harvested for consumption as vegetables at proper maturity stage. Ripe agathi leaves, which are green in colour, edible and pliable. Dried, desiccated leaves ready to fall from the tree should be avoided from harvesting for human consumption. The full developed flowers are harvested for vegetable purpose.

Plant protection

A main constraint in raising agathi is its susceptibility to severe pest attacks on plant population.

Major pests are as

Leaf Webbers

Symptoms

- Infest initially on the chlorophyll of young leaves later on older leaves, buds and pods, make webbings and live within.
- Defoliation of plant.

Management

- Remove and destroy badly infested part of plants.
- Apply spray of anyone insecticides such as phosalone 35 EC @ 2 ml/ l or fenvalerate 20 EC 0.5 ml/lit

Leaf feeders

Symptoms

- Insects feeding on the leaves of plant remove sap with sucking mouth parts.
- All of these types of feeding remove chlorophyll resulting in reduced photosynthesis.

Management

- Pick off and destroy infested part of plants.
- Apply spray of anyone insecticides phosalone 35 EC @ 2 ml/ l or fenvalerate 20 EC 0.5 ml/lit

Stem borers

Wood-boring insects are among the most damaging pests of agathi plants. causes girdling, branch dieback, structural weakness, decline, and death in susceptible plants Plant pathogens gain access through infested plant sites.

Management

- Apply insecticides only during, when borers are vulnerable.
- Practicing Mulching around the plants
- Pruning the trees on the time
- Inject any organophosphate such as monocrotophos 36 WSC.
- Use carbaryl 50 wp.

- Use kerosene oil.

Major diseases are as

Collar seedling blight

- Infected at underground plant parts
- It is a fungal infection that causes the seed or seedling to rot and die.
- It can be signed by patches in the field that fail to germinate.

Management

- Seed should be treated with *Trichoderma viride* 4 g/kg of seed or Thiram 3 g/kg of seed.
- Plant good quality seed to prevent severe infection
- By good sanitation
- Apply proper cultural practices
- environmental controls

Gray leaf spot

Symptoms

- Primarily appear on the lower leaves.
- Infected leaves are small, spherical lesions with yellow halo.
- Leaves appear grayish in color due to the presence of fungal spores

Management

- grow Resistant varieties
- proper Residue management
- balanced fertilization
- balanced irrigation
- spray of fungicides

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