

Agathi (*Sesbania grandiflora*): An Underutilized Vegetable

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Agathi, scientifically known as *Sesbania grandiflora*, is a plant belonging to the family Leguminaceae. It is commonly referred to by several names, including vegetable hummingbird, West Indian pea, Flamingo Bill, Swamp Pea Tree, agati and katurai. The species has a chromosome number of $2n = 24$. The young leaves and flowers are the main edible parts of the plant and are traditionally consumed in several parts of South and Southeast Asia. Note: Agathi leaves are said to have the highest levels of vitamin A, phosphorus & calcium among all green leafy vegetables!



Area and Distribution

Agathi is believed to have originated in the Southeast Asian region, with India, Malaysia and the Philippines being considered among its possible areas of origin. Its natural distribution extends from Burma to Australia. In India, the crop is found in several states, including Tamil Nadu, Andhra Pradesh, Kerala, Assam, Gujarat and West Bengal.

Botanical Description

Agathi is a perennial tree that may remain either deciduous or evergreen depending on the growing conditions. Under favourable conditions, it can reach a height of about 10–15 m and may live for nearly 20 years. The plant develops a well-nodulated root system, and in waterlogged conditions, some roots may become exposed or develop above the soil surface. The stem is generally straight with a few branches. Its leaves are pinnately compound and consist of numerous oblong leaflets.

The flowers are produced in axillary racemes and may vary in colour, including white, yellowish, pink and red. The pods are long, usually around 50–60 cm, smooth in appearance and generally hang vertically from the plant.

Varieties and Flower Colour Groups

No formally developed varieties of Agathi have been reported through systematic breeding programmes. However, the plants are commonly grouped according to flower colour into four types:

1. Sita – Produces white flowers.
2. Peeta – Produces yellow flowers.
3. Neela – Produces blue-coloured flowers.
4. Lohita – Produces red flowers.

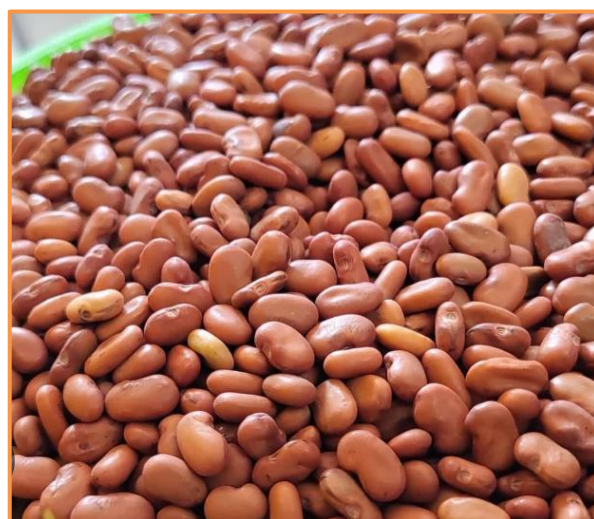
Among these groups, the white- and red-flowered types are commonly used as vegetables, whereas the other types are more often associated with traditional medicinal uses. The red-flowered type is reported to have a higher phenolic content than the white-flowered type.

Climate and Soil

Agathi performs well under warm and humid conditions. It grows satisfactorily in areas receiving approximately 2,000–4,000 mm of annual rainfall and can be cultivated at elevations of around 1,000 m above sea level. A temperature range of about 22–30°C is suitable for its growth. The plant is sensitive to frost and prolonged exposure to low temperatures. One of its important characteristics is its ability to grow under a wide range of soil conditions. It can tolerate poorly fertile and waterlogged soils and also shows some tolerance to saline, alkaline and mildly acidic soils. In India, Agathi is particularly well adapted to heavy clay soils.

Propagation

Agathi is mainly propagated through seeds, although hardwood cuttings taken from stems or branches can also be used. Seeds are generally collected around May and raised in nursery beds or polythene bags during May–June. The seeds have a viability period of approximately six months, and about 16,000 seeds may be present in one kilogram of seed. Under suitable conditions, germination begins within about one week. The seedlings generally become ready for transplanting 30–45 days after sowing. For planting, pits of approximately 30 × 30 × 30 cm are recommended.



Sowing and Spacing

Warm conditions are favourable for Agathi seed germination, with a soil temperature of around 25°C being suitable. The preferred sowing period varies with the region. In subtropical areas, sowing is generally carried out during November–December, while in tropical regions it may be undertaken from October to January. After nursery raising, the seedlings are planted at a spacing of approximately 1.5 × 2 m.

Harvesting

Agathi leaves, flowers and pods can be harvested for vegetable consumption when they reach the appropriate stage of maturity. The leaves selected for consumption should be fresh, green, tender and pliable. Old, dry and severely desiccated leaves should not be collected for human consumption. Fully developed flowers are also harvested and used as vegetables. When Agathi is grown for fodder, leaf harvesting should be carried out carefully and at suitable intervals rather than removing foliage repeatedly throughout the year.

Why is Agathi Considered an Underutilized Vegetable?

Although Agathi has traditionally been used as a vegetable, it remains an underutilized crop. One major reason is that it is mostly cultivated on a small scale for household consumption rather than as a commercial crop. It is also commonly planted around other crops, such as banana and coconut, where it may serve as a windbreak or provide shade for young plants.

Major Reasons for Its Low Utilization

- 1. Limited Commercial Cultivation:** Agathi is rarely cultivated as a major commercial vegetable crop. Farmers often grow it for household use or as a supporting plant around other crops.
- 2. Poorly Developed Supply Chains:** Organized marketing systems, transportation facilities and commercial seed supply are limited. As a result, Agathi does not regularly reach mainstream vegetable markets.

3. Low Consumer Awareness: Many consumers are unfamiliar with Agathi and may not know about its nutritional value, methods of preparation or traditional uses.

4. Traditional Culinary Perception: In some communities, Agathi is mainly associated with traditional food practices and medicinal use. This has limited its acceptance as a regular vegetable in modern diets.

5. Limited Research and Breeding Efforts: Compared with major vegetable crops, relatively less attention has been given to improving Agathi through breeding, production technologies, yield improvement and commercial cultivation practices.

Possible Side Effects of Eating Agathi Keerai

Agathi leaves are traditionally consumed as a vegetable, and moderate consumption is generally considered safe. However, consuming large quantities may cause digestive discomfort in some individuals because of their fibre content.

Common Concerns

Digestive discomfort: Excessive consumption may result in stomach discomfort, bloating or mild indigestion in some people.

Interaction with traditional medicines: Traditional dietary practices sometimes recommend avoiding Agathi while taking certain Siddha herbal preparations because it is believed to interfere with their effects. Such traditional claims should be considered separately from clinically established drug interactions.

Food combinations: Some traditional dietary practices advise avoiding Agathi along with alcohol or certain meats. These recommendations are based mainly on traditional beliefs and should not be treated as established medical evidence without supporting clinical research.



Potential Health Benefits of Agathi Flowers

Agathi flowers contain various nutrients and antioxidant compounds and have traditionally been valued for their health-related properties.

Supports antioxidant activity: The antioxidant compounds present in the plant may help protect cells from oxidative damage.

Traditional cooling effect: In traditional food and health practices, Agathi is often considered a food that helps reduce excess body heat.

Supports digestion: Agathi has traditionally been included in diets for its digestive benefits and is sometimes associated with maintaining digestive health.

Overall, Agathi is a useful but underexploited vegetable resource. Its edible leaves and flowers, adaptability to difficult soil conditions and traditional food value make it a crop with potential for greater utilization. Better awareness, organized marketing, improved cultivation practices and further research could help increase its importance as a vegetable crop.