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CASSABANANA: A FANCY VEGETABLE

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Botanical Name : *Sciana odorifera* (Vell.) Naudin

: *Cucurbita odorifera* Vell. and *Cucurbita evodicarpa* Hassk

Family : Cucurbitaceae

Sub-family : Cucurbitoideae

Origin and Distribution

Cassabanana is believed to be the native to Brazil, but now, it has been spread throughout the tropical America (Lira, 1991). Historical evidences show that it was cultivated in Ecuador in pre-Hispanic times. First time in 1658, it was mentioned by European writers as cultivated and popular vegetable in Peru. In the Central America, it is grown near sea-level but its fruits are carried to markets even up to the highlands. In Cuba, Puerto Rico and Mexico, it is grown mostly for the usefulness of its fruit, but in Brazil and Venezuela, it is mainly grown for its ornamental purpose.

Introduction

Cassabanana (*Sicana odorifera* Naud. synonym *Cucurbita odorifera* Vell.), an interesting member of Cucurbitaceae family, is also known as *sikana* or musk cucumber (Mortan, 1987). It is also known as *melocotonero*, *calabaza melón*, *pérsico* or *alberchigo* in Mexico, *melocotón* in El-Salvador and Guatemala, *calabaza de chila* in Costa Rica, *cojombro* in Nicaragua, *chila* in Panama, *pavi* in Bolivia, *padea*, *olerero*, *secana* or *upe* in Peru, *calabaza de Paraguay*, *curuba*, or *pepino melocoton* in Colombia, *cura*, *coróa*, *curua*, *curuba*, *cruatina*, *melão caboclo* or *melão macã* in Brazil, *cajú cajuba*, *cajua*, *cagua*, *calabaza de Guinea* in Venezuela, *pepino*, *pepino angolo* or *pepino socato* in Puerto Rico and *cohombro* in Cuba. It is not at all a banana though it is cucurbitaceous edible fruit, looking a lot like a cucumber. It is still quite tropical but nearly unheard in India to date. Cassabanana is native to the New World tropics and cultivated as an ornamental plant and for its sweet-smelling fruit.

Composition and Uses

The yellow and orange-fleshed fruits of cassabanana are rich in beta-carotene, minerals, niacin and ascorbic acid. The mature green fruit contains 92.7% moisture, whereas, the ripe fruit contains 85.1% moisture. As compared to the decrease in moisture content of fruit during ripening, there is a marked increase in the protein content, which is from 0.093 to 0.145 g per 100 g of the edible portion. As the fruit matures, the fat content decreases from 0.2 to 0.02 g. The nutritive value of cassabanana fruit is given below in the Table 1:

Table 1: Nutritional composition of peeled green and ripe fruit (values per 100 g of edible portion)

Constituents	Peeled green fruit (including seeds)	Ripe fruit (without peel, seeds, or soft central pulp)
Moisture (g)	92.7	85.1
Protein (g)	0.093	0.145
Fat (g)	0.21	0.02
Fiber (g)	0.6	1.1
Ash (g)	0.38	0.70
Calcium (mg)	8.2	21.1
Phosphorus (mg)	24.2	24.5
Iron (mg)	0.87	0.33
Carotene (mg)	0.003	0.11
Thiamine (mg)	0.038	0.058
Riboflavin (mg)	--	0.035
Niacin (mg)	0.647	0.767
Ascorbic Acid (mg)	10.0	13.9

Food Uses

The flesh of ripe fruits is considered as cooling and refreshing when eaten raw, especially in hot summer months. The fruit, which is said to have a sweet tropical flavour, is either cooked prematurely like squash or allowed to ripen and used fresh, in drinks or pies. However, it is mainly used for making jam or other preserves. The immature fruits are cooked as a vegetable and also used in soup and stews.

Medicinal Uses

In Puerto Rico, the flesh of its ripe fruits is crushed and steeped in water, with added sugar, overnight at room temperature to allow it to ferment slightly. The fermented product is sipped along with its flesh to get relief from sore throat. At the same time, it is also believed that wearing necklace of its seeds around the neck is also very beneficial in sore throat. The leaves of cassabanana are employed in treating uterine hemorrhages and venereal diseases. In Brazil, the infusion prepared from its seeds is also taken as a febrifuge, vermifuge, purgative and emmenagogue. In Yucatan, a decoction prepared from its leaves and flowers (2 g in 180 ml water) is prescribed as a laxative,

emmenagogue and vermifuge. The seeds and flowers of cassabanana yield a certain amount of hydrocyanic acid so it is advisable not to make a too much strong decoction from seeds and flowers.

Other Uses

People believe that keeping its ripe fruits around the house, especially in muslin clothes repels moths especially in rainy season because of its long-lasting strong fragrance. Placing its fruits on church altars in holy weeks is considered promising by the people of Christian community. In fact, many people prefer to use its long-lasting ripe fruits as air freshener in kitchens and lavatories due to its long-lasting agreeable and pleasant fragrance.

Cassabanana Puree

Ingredients

- Three cups of cooked cassabanana pulp
- One tablespoon unsalted butter
- One tablespoon of clarified butter
- Pepper 1 finger-seeded woman chopped into squares
- One tablespoon of finely chopped parsley
- Half cup milk
- A pinch of salt

Recipe: In a saucepan, take pulp of cassabanana, stir it with raw milk and beat well with the mixer. Before adding milk, the pulp is passed through the sieve to make the pulp homogeneous, and thereafter, it is returned to heat and stirred constantly. Clarified butter is added into it after turning off the heat and stirred until it is melted completely. Then, salt, pepper and parsley are added according to taste and mixed properly. After preparation, the puree is put in a bowl and decorated with butter and finely chopped green coriander leaves.

Botany:- Cassabanana is a fast-growing perennial herbaceous plant, requiring trellises for climbing (Morton, 1987). The vines prefer to grow in partial to full sun. Its vines climb trees of 15 m or more with the help of tendrils equipped with adhesive discs, which can adhere tightly to the smoothest surface. The young stems are covered with some tiny gland hair like structures on them (Kellog *et al*., 2002). The leaves, which are three lobed with serrated margins deeply indented at the base, are gray in colour, rounded kidney-shaped and 30 cm wide (Morton, 1987). The leaves petioles are 4-12 cm long. Its five-lobed and urn-shaped flowers

born solitary in the axil of leaf are either white or yellow in colour. The male flowers are 2 cm long, whereas, the female flowers are about 5 cm long. The fruits of cassabanana, which are renowned and famous for its melon-like sweet and lovely aromatic strong odour, are long and cylindrical and seem just an overgrown cucumber with a very tough skin.

The striking fruit is 30-60 cm long, 7-11.25 cm thick, maroon, orange-red and dark-purple with violet tinges or entirely jet-black in colour and nearly cylindrical, ellipsoid, or sometimes slightly curved in shape. On ripening, they become glossy, smooth with firm, orange-yellow or yellow, tough, cantaloupe-like with 2 cm thick juicy flesh. The fruit pulp with fleshy core present in the central cavity is soft. The cavity is filled with seeds, which are oval shaped, 16 mm long, 6 mm wide and light-brown bordered with a dark-brown stripe. In cavity, the seeds are present in tightly-packed rows extending the entire length of the fruit.

Climatic Requirement

Cassabanana is essentially a warm season crop mainly grown in tropical and subtropical regions. Hence, the its seeds are sown after the threat of frost has passed in the spring. The optimum temperature to harvest good production is 27-30°C, and for proper germination, the optimum temperature of day should be above 25°C. Since it thrives in hot summer weather, it does not perform much till the summer arrives. Afterwards, it needs a lengthy ripening time before the occurrence of frost. Because of this, this plant is nominated to grow indoors for early starting. At low temperature, it grows slowly to start until the heat kicks it. The plant does not produce many female flowers but all of them set fruit. It grows like a melon and needs ample water and full sun with warm to hot temperature for fruit to ripen. It can be grown as an annual in most climates during warm months.

Soil Requirement

The soil at the planting site is amended with compost. A well-drained sandy loam to loam soil rich in organic matter is best for its cultivation. Lighter soils, which warm up quickly in spring season, are usually used for early crop. Cassabanana vines prefer to grow in soil having a pH as close to 7.0 as possible so amending soil is necessary by adding lime if the pH is less than 7.0 and by adding gypsum if the pH is greater than 7.0. The required amendments are mixed well into the soil. The field should have adequate drainage facility. For direct sown crop, the field is prepared to a fine tilth by repeated ploughing and planking.

Sowing Time

The best time for its sowing is February last week to first week of March when the danger of frost is over. In north India, early sowing may also be done by raising the seedlings in protrays and transplanting them in the field as and when the temperature becomes favourable.

Sowing Method:- Cassabanana is very hard to find any information on its cultivation. It is generally propagated by seeds, which are not too difficult to come by since several tropical-

oriented companies offer seed for sale but cuttings can also be used for the propagation of this crop. The seeds are directly sown in the field at a depth of 4-5 cm and about 30 cm apart.

Before sowing seeds in the field or protrays, they are soaked in lukewarm water for a period of 16-24 hours for fastening the germination process. For the completion of germination anywhere, the seeds take 4 to 6 weeks. For filling of the plastic trays, a mixture is prepared by mixing sand or perlite and compost in the ratio of 1: 1. After filling the trays with this mixture, the seeds are gently sown and watered with a rose can, and thereafter, the seed trays are covered with plastic sheet to maintain humidity and temperature. If a plastic sheet is not available then the trays may be covered with some plastic wrap secured with a rubber band. When the seedlings attain 5 cm height, they are transplanted to a well prepared field having full sunlight.

Nutritional Requirement

Cassabanana responds well to the application of compost and fertilizer in the early spring, hence, for getting economic yield from cassabanana crop, about 20-25 tonnes of farmyard manure or compost should be mixed thoroughly into the soil at the time of land preparation and a mixture of nitrogen 50 kg, phosphorus 25 and potassium 25 kg per hectare should be applied at the time of sowing or transplanting.

Irrigation Requirement

At the time of sowing, the soil should have plenty of moisture since the cassabanana seeds need high humidity for better germination. If the soil is not having enough moisture, water the soil immediately after sowing seeds. The soil is kept moist by sprinkling water regularly with a spray bottle until the germination process is completed. Over-watering the vines should be avoided since excessive moisture in soil promotes root rot.

Intercultural Operations

Hoeing and weeding

As and when the plants are large enough to handle, the excessive plants should be removed from the field to give proper spacing, leaving only 2 healthy seedlings per hill. Weeds during early stages of crop growth pose problem and compete with crop for moisture, nutrients, space and sunlight and provide shelter to insect-pests and diseases. Hence to keep the weeds under check, two or three shallow hoeing should be done before the vines cover the ground. However, deep hoeing should be avoided as it may damage the fibrous roots near the soil surface.

Mulching:- The soil around the vines should be mulched with bark chips or straw mulch, which improves drainage and reduces weed growth. Mulching also provides protection to the roots of cassabanana vines against summer heat and winter chill. Mulching with paddy straw, wheat straw, or sugarcane tresses may improve the number of fruits per plant.

Staking and training:-The vine of cassabanana may be too long and cumbersome for very small gardens. It needs a lot of sprawl space or a tall trellis. Training has an additional advantage since the vine of cassabanana loves to climb, hence, providing support to the vine is necessary. A strong trellis is placed behind each seedling for climbing the vine. Training cassabanana vines over trellis is of great benefit since per unit area more number of plants can be adjusted and it allows maximization of space by controlling vine growth and prevents

the fruits from rot. If vines are allowed to creep on the ground, yield is reduced 30% since the vine grows up and down on the trellises, resulting in a jumbled mess that at least kept the fruit off the ground. Training also allows the production of fruits with more uniform shape and colour and allows the fruit to grow straight and longer. The vines training over bower system is considerd the best for this crop. For the preparation of bower, bamboos or cemented, wooden, or angle iron poles are used. In early stage, bamboo sticks can be used for proper support. Training in cassabanana production is very usefull since training ensures quality fruit of uniform size, rotting of fruit is very much reduced, harvesting becomes very easier, intercultural operations and plant protection measures can be easily applied, maintains the vitality of the vine for a longer period and increase the marketable yield per vine.

Brazilians train the vine to grow over arbors or they may plant it close to a tree. However, if it is allowed to climb too high up the tree there is the risk that it may smother and kill it.

Harvesting

At maturity, it begins changing its colour from green to yellow and then from yellow to purplish or black. Flesh is orange yellow like cantaloupe. However, rain at the time of maturity causes the fruit to split open and bugs quickly find their way inside and ruin the fruit as and when they become edible. The ripening period for this fruit is too long.

The harvesting of cassabanana fruits depends on the purpose. Generally, the fruits are harvested as and when they are ready for use. Cassabanana fruits can be kept in good condition for several months if they are stored in dry place and away from sunlight. Its fruits have very high market value, and in the market, they are sold by the weight.

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