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FACULTY OF AGRICULTURAL SCIENCES AND ALLIED INDUSTRIES

Coccinia grandis (L.) Voigt.

Syn: *Coccinia indica* and *C. cordifolia*

The ivy gourd, *Cocccinia grandis* (L) Voigt, is commonly known as *kundru* or *tondli.* It is a climbing perennial having small (4-5 cm long and 1-2cm in diameter) ovoid or elliptical. The fruits are smooth and bright green with stripes which become scarlet red on ripening. The roots are long and tuberous. The leaves have five lobes with serrated margin.

The ivy gourd is cultivated in India, tropical Africa, Malaysia and other south east Asian countries, and China. In India it is widely grown in southern; eastern and western regions, mainly in Tamil Nadu, Karnataka, Kerala, Maharastra, Gujarat, Andhra Pradesh and West Bengal.

It has about 30 species, occurring mostly in Africa. Only one species- *Coccinia grandis* (L.) Voigt. - is cultivated. It is a perennial found naturally in India and tropical Africa. A monoecious species is cultivated and the species, *C. abyssinica* is grown in Ethiopia for its edible tuberous roots. In India *C. grandis* (L.) Voigt. *(Coccinia indica* Wight & Am.) is distributed in northern plains and terai regions, extending to peninsular region.

Origin and distribution

About 30 species of the genus *Coccinia* occur wild in Africa. The cultivated species, *C. grandis* (L) is found growing in nature in the tropics of India and southeastern Asia besides Africa. It was domesticated in India and Southeast Asia. In India, the ivy gourd, known as "bimba" It has been recorded in the Mahabharat period.

The ivy gourd is a diploid with 2n=24. Extensive studies on karyotype and chromosome biology have revealed a pair of heteromorphic chromosomes in the male plant. There is a large chromosome in the male plant and two x chromosomes in the female plant. The male plant has 22 autosomes with a pair of XY chromosomes and the female plant with 22 autosomes and a pair of chromosomes. Polyploidy does not affect dioecism and male is always heterogametic with Y chromosomes

Genetics and Breeding

There are no reports on genetics and breeding of ivy gourd. Almost all the present day

cultivars ivy gourd have been developed by farmers as clonal selections, mainly from seedling progenies spontaneous mutations. The fruits of the different varieties vary in shape, size and stripe pattern. There are also few types in which plants with male flowers are absent and the fruits produced on the female plants are parthenocarpic. Some types having bitter fruit, not suitable for human consumption, are also found occasionally.

Area and production

The data on area and production of ivy gourd are not available.

Uses

The immature fruits are cooked and used in sambar or fried. The tender shoots are also eaten. Leaves, stems and roots have medicinal uses in ayurvedic and native systems for treatment of skin diseases, bronchitis and diabetes and also for lowering blood sugar levels.

Production Technology

Climate

The ivy gourd grows best in warm and humid climate. The optimum temperature requirement is 20 - 30 degree celsius. In southern region, it continues to produce fruits almost throughout the year but the peak seasons of fruiting are summer and rainy seasons. In the northern plains the plants remain dormant during winter and produce fruits only once in a year.

Soil

The most suitable soil for growing ivy gourd is well drained sandy loam. Heavy clay is to be avoided. The best soil pH is 6.5. The crop does not grow well in acidic and alkaline soils.

Planting

The ivy gourd is vegetatively propagated by stem cutting. Semi hardwood cuttings, 15-20 cm long and 1.5-2.0 cm thick, having 5-6 leaves on each cutting, are used for planting. Two to three cuttings are planted, about 5-6 cm. deep, in each basin of 60 cm. diameter. The distance between the basins is 1.5-2.0 metre. The planting is done in June-July or February-March. The plant population in a field should have female and male plants in a ratio of 10: 1. The plants are perennial, replanting is advocated after every 4-5 years. The vines are trailed on bowers or bamboo pandals of 1.25-1.50 m.

height. The dimensions vary according to the requirement.

Manures and Fertilizers

About 20 tonnes of FYM are applied at the time of basin preparation and planting. The fertilizer requirements are 60-80 kg N, 40-60 kg P and 40 kg K per hectare. Both manures and fertilizers are applied every year before fruiting starts. The plants start fruiting in 10-12 weeks after planting. The vines are pruned back after the fruiting is completed, leaving 60-75 cm long vines. In N plants are pruned twice in a year, in September and April. About 8-10 mm thick is pruned back to two buds. Every year after pruning about 3-5 kg. FYM is applied to each plant.

Interculture

Weeding and light hoeing are done during the early stages of vine growth.

Irrigation

The plants require light irrigation at 10-12 days interval during summer. Watering may not be necessary in rainy season. The soil should have adequate moisture during flowering and water logging is harmful to the plants.

Yield

The flowering starts after 50-60 days of planting. The average yield is about 10-15 tonnes per hectare.

Storage

The immature fruits after harvesting can be stored at room temperature for about a week.