

A PROMISING TRIPLOID OF LITTLE GOURD

Little gourd also known as ivy gourd [*Coccinia grandis* (L.) Voigt] is a perennial cucurbitaceous vegetable grown almost throughout India. The tender fruit of this crop is used as a cooked vegetable. This plant is much valued in the indigenous system of medicine in the treatment of diseases such as skin infections, bronchitis and diabetics. The fruit contains appreciable amounts of iron, vitamin A and vitamin C. The tender shoots of the plant are sometimes used as pot-herbs. This crop is dioecious but the female plant is capable of producing parthenocarpic fruits.

Practically little crop improvement work has been attempted on this crop. Locally available cultivars are prevalent among the farmers. Polyploidy was attempted in this crop to assess the effect of ploidy level on its growth and fruit characters at the Department of Olericulture, College of Horticulture, Vellanikkara, Thrissur, Kerala.

To induce tetraploidy, colchicine at concentrations varying from 0.1 to 0.5 per cent was applied on the sprouting vegetative buds of cuttings of the little gourd genotype CG-23. Twenty-five

cuttings were treated under each concentration. One cutting treated with 0.2 per cent colchicine gave rise to a tetraploid plant ($2n = 48$) as confirmed by cytological studies. This plant exhibited prominent polyploid features as described by Allard (1960). It was highly vigorous with enlarged and thick leaves. The

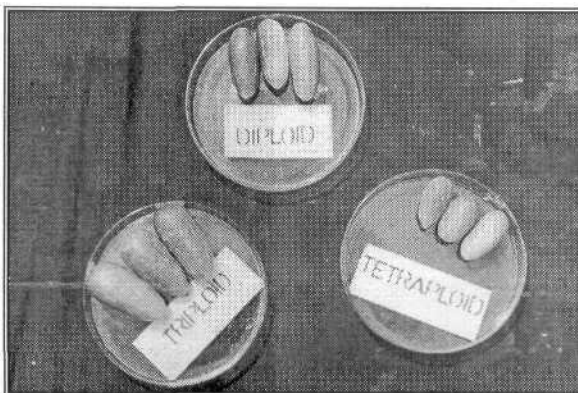


Fig. 1. Fruits of diploids, tetraploids and triploids of little gourd

flower size and fruit girth was markedly higher than that in the diploid parent, but the fruit length was less (Table 1). In an attempt to breed a triploid of ivy gourd, the induced tetraploid was crossed with a diploid male ivy gourd genotype. Kihara (1958) had demonstrated the production of triploid watermelon

Table 1. Comparative evaluation of diploid, tetraploid and triploid of *Coccinia grandis*

Characters	Diploid	Tetraploid	Triploid
Days to flowering	40	42	38
Flower size	Medium	Large	Medium
Fruit size	Medium	Small	Large
Fruit length (cm)	6.59	4.49	7.50
Fruit girth (cm)	7.40	8.20	11.60
Fruit weight (g)	15.20	14.50	44.20
Polyphenol per gram of fruit (μg)	0.300	0.311	0.090
Fruit colour	Green white strips	Green with white strips	Green with white
Leaf size	Medium	Large	Medium
Leaf thickness	Medium	Very thick	Medium
Fruit yield/plant/year (kg)	10.32	9.34	15.25

in somewhat similar way by the cross of tetraploid and diploid lines. Even though the fruits set in all the tetraploid x diploid crosses, the filled seeds per fruit was 2.4 per cent. Morphologically the triploid plants resembled more or less the diploid but the significant fea-

tures of the triploid were their increased fruit size (Fig.1), less astringency, vigorous growth and higher yield (Table 1). As the fruits of triploid had less polyphenol they were tastier and hence could be promoted as salad crop. The evolution of triploid coccinia having bigger sized fruits and high fruit yield will be a marked achievement.

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