

RESEARCH ARTICLE

# A study on effect of different cultivars on bitter gourd [*Momordica charantia* L.]

■ Chandan Tiwari, A. Pandey and S. K. Singh

## SUMMARY

The field trial was conducted at the Rajaula Agricultural Research farm of the Faculty of Agricultural Sciences, Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya, Chitrakoot – Satna (Madhya Pradesh) during *Kharif*, 2018-19. The objective was to find out the best cultivar on growth and yield of bitter gourd. In this investigation fifteen cultivar were tested in Randomized Block Design with three replications. Randomly three plants were selected to record the observations on different thirteen characters. Significantly maximum fruit yield (33.33 q/ha) was recorded under Sagar varieties followed by 31.11 q/ha IC-085611 and over control.

**Key Words :** Bitter gourd, Fruit yield/plot (kg), Fruit yield q/ha, Yield attributes

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**B**itter gourd is one the most popular vegetable in India. It grown extensively throughout India; the bitter gourd has good medicinal value as well. It

is an excellent source of dietary fibre. Regular consumption of bitter gourd contributes to relieving constipation and indigestion. It supports healthy gut bacteria, which favours digestion and nutrient absorption.

In India *M. charantia* have relatively broad phenotypic species variation (*i.e.*, sex expression, growth habit, maturity and fruit shape, size, colour and surface texture (Behera *et al.*, 2006). Estimates of heritability have to be considered with conjunction with genetic advance and change in mean value among successive generation, alone it does not provide idea about expected gain in next generation (Shukla *et al.*, 2006). Bitter gourd fruits are medicinal value and used for curing diabetes, asthma, blood disease. Drinking fresh bitter gourd juice

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is recommended by naturopaths. Roots and stem of wild bitter gourd are used in many Ayurveda medicines. For a successful planning of breeding improvement programme, the analysis of variability among the different traits and their association of a particular character in relation to yield and its attributing traits would be of greater importance (Mary and Gopalan, 2006)

It is a warm season crop grown mainly in subtropical and hot arid region. The nutritive values of bitter gourd fruits vary with the varieties. The small-fruited (*Momordica charantia* var. *muricata*) types are found to be more nutritious than the large-fruited (*Momordica charantia* var. *charantia*) types. This vegetable is a different nature's bountiful gifts to mankind, which is highly useful and beneficial for humans.

It is possible to develop high-yielding open pollinated varieties, or hybrids, by utilizing existing variability (Islam *et al.*, 2009) and this technique could be used in improvement of bitter gourd.

## MATERIAL AND METHODS

The experimental material consisted of fifteen genotypes conducted during *Kharif* season of 2018-19 at the main experiment Station, Rajaula agriculture farm

of the faculty of agriculture at Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya Chitrakoot, Satna, Madhya Pradesh, India. The experiment was laid out in RBD (Randomized Block Design) with three replications in individual plot size (3.0 m × 3.0 m). The distance maintained between row to row and plant to plant was 1.0 m and 1.0 m, respectively.

All recommended agronomic practices for the region were adopted to raise a healthy crop. The observation recorded of three plants randomly selected from each plot on thirteen characters. Data were recorded on various parameters, *viz.*, Number of branch/plants, days to first female flower appearance, days to first male flower appearance, node number to first female flower, node number to first male flower, days to first picking, number of marketable fruit/vines, average fruit length (cm), average fruit width (cm), average fruit weight (g), fruit yield/plant (g) and fruit yield/plot (kg), fruit yield (q/ha).

The analysis of variance for the design of experiment (RBD) was carried out according to the procedure outlined by Panse and Sukhatme (1967).

## RESULTS AND DISCUSSION

The result presented it is overall mean value in Table

**Table 1 : Mean performance of different cultivars in bitter gourd**

Sr. No.	Genotype/ varieties	Number of branch /plant	Days to first female flower appearance	Days to first male flower appearance	Node number to first female flower	Node number to first male flower	Days to first picking	Number of marketable fruits/vine	Average fruit length (cm)	Average fruit width (cm)	Average fruit weight (g)	Fruit yield/plant (g)	Fruit yield/plot (kg)	Yield (q/ha)
1.	IC-085608	16.33	48.11	37.11	19.00	12.00	62.00	10.22	10.33	7.87	33.44	326.67	1.43	15.92
2.	IC-085609	14.00	46.66	28.33	20.00	11.33	64.67	11.22	8.59	7.63	38.00	238.67	0.90	10
3.	IC-085610	12.00	48.77	42.67	22.00	13.00	62.33	11.11	11.36	8.40	44.33	456.67	2.40	26.66
4.	IC-085611	13.33	53.22	41.22	17.77	14.00	56.00	11.11	9.47	7.50	47.33	480.88	2.80	31.11
5.	IC-085612	14.00	47.99	36.33	18.00	13.00	67.67	12.22	7.58	8.30	29.11	387.55	1.78	19.81
6.	IC-085613	13.00	52.00	41.44	17.66	13.00	62.67	10.55	9.34	6.90	31.88	223.33	0.95	10.55
7.	IC-085614	11.00	56.55	42.11	18.33	12.00	71.00	8.33	7.44	8.17	33.66	261.66	1.42	15.73
8.	IC-085615	13.00	52.78	39.44	17.77	14.00	64.00	9.77	10.39	7.83	33.33	339.11	1.97	21.85
9.	IC-085616	12.00	48.22	36.78	18.66	13.67	67.67	10.55	11.56	8.03	38.77	363.55	2.20	24.44
10.	IC-085617	12.00	48.44	35.11	18.44	9.00	62.67	9.88	9.53	7.87	36.11	327.66	2.35	26.11
11.	Sagar	15.00	47.99	36.22	18.33	12.00	56.67	10.88	13.00	11.00	48.00	481.67	3.00	33.33
12.	VNR-32 power	10.00	49.00	33.88	18.11	11.33	60.00	8.89	11.70	7.97	33.66	311.22	2.47	27.4
13.	Aman	14.00	46.00	33.00	18.22	10.00	65.00	8.55	11.22	8.00	36.11	378.33	1.93	21.37
14.	Jhalari	12.00	46.66	36.89	18.11	10.33	69.00	11.22	8.62	7.93	32.33	357.89	2.02	33.29
15.	HVBG045	10.00	47.22	32.22	17.33	12.67	64.00	9.78	9.57	8.33	41.66	315.22	2.50	27.78
	Maximum	16.33	56.55	42.67	22.00	14.00	71.00	12.22	13.00	11.00	48.00	481.67	3.00	33.33
	Minimum	10.00	46.00	28.33	17.33	9.00	56.00	8.33	7.44	6.90	29.11	223.33	0.90	10
	Average	12.78	49.31	36.85	18.52	12.09	63.69	10.29	9.98	8.02	37.18	349.95	2.01	22.29
	S.E.±	1.17	0.82	1.08	0.62	0.95	1.76	0.76	0.93	0.44	3.02	17.35	0.11	1.24
	C.D. (P=0.05)	3.42	2.40	3.15	1.80	2.77	5.14	2.21	2.72	1.28	8.83	50.63	0.32	3.61
	CV	15.86	2.89	5.08	5.76	13.61	4.79	12.73	16.15	9.37	14.09	8.59	9.55	9.62

1 revealed that significantly average fruit length (13.00 cm), average fruit width (11.00 cm) and average fruit weight (48.00 g) was recorded in sagar, respectively. Significantly maximum days to first male flower appearance (42.67) and node number to first female flower (22.00 nos) was also recorded in IC-085610, respectively. Highest days to first picking (71.00) and Days to first female flower appearance (56.55) was significantly higher in IC-085614 and highest number of branches (16.33 nos) was significantly higher in IC-085608 and highest number of marketable fruits/vine (12.22 nos) was recorded in IC-085612 and highest Node number to first male flower (14.00 nos) was recorded to same genotype IC-085611 and IC-085615. Data further revealed that significantly highest fruit yield/plant (481.67 g) and highest fruit yield/plot (3.00 kg) and fruit yield (33.33 q/ha) was also recorded in the same varieties *i.e.* sagar.

Ziaul *et al.* (2018) A field experiment was conducted with 20 genotypes of bitter gourd (*Momordica charantia* L.) to study the variability among the genotypes for yield and yield contributing characters, estimate genetic parameters, association among the characters and their contribution to yield during April 2015 to September 2015. There was a great deal of significant variation for all the characters among the genotypes.

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