International Journal of Chemical Studies

P-ISSN: 2349–8528
E-ISSN: 2321–4902
IJCS 2018; 6(5): 581-584

Received: 09-07-2018
Accepted: 13-08-2018

Shivaprakash B
Department of Vegetable Science, Kittur Rani Channamma College of Horticulture, Arabhavi-591218 University of Horticultural Sciences, Bagalkot, Karnataka, India

HP Hadimani
Department of Vegetable Science, Kittur Rani Channamma College of Horticulture, Arabhavi-591218 University of Horticultural Sciences, Bagalkot, Karnataka, India

Dr. CN Hanchinamani
Department of Vegetable Science, Kittur Rani Channamma College of Horticulture, Arabhavi-591218 University of Horticultural Sciences, Bagalkot, Karnataka, India

Dr. Vijay Mahantesh
Department of Vegetable Science, Kittur Rani Channamma College of Horticulture, Arabhavi-591218 University of Horticultural Sciences, Bagalkot, Karnataka, India

Ashok
Department of Vegetable Science, Kittur Rani Channamma College of Horticulture, Arabhavi-591218 University of Horticultural Sciences, Bagalkot, Karnataka, India

Sandhyarani Nishani
Department of Vegetable Science, Kittur Rani Channamma College of Horticulture, Arabhavi-591218 University of Horticultural Sciences, Bagalkot, Karnataka, India

Correspondence
Shivaprakash B
Department of Vegetable Science, Kittur Rani Channamma College of Horticulture, Arabhavi-591218 University of Horticultural Sciences, Bagalkot, Karnataka, India

Effect of different planting dates on the growth and yield of unexploited cucurbitaceous vegetable Karchikai (*Momordica cymbalaria*) under northern dry zone of Karnataka

Shivaprakash B, HP Hadimani, Dr. CN Hanchinamani, Dr. Vijay Mahantesh, Ashok and Sandhyarani Nishani

Abstract
An experiment on karchikai (*Momordica cymbalaria*) was conducted during 2017 at Research field of Department of Vegetable Science, Kittur Rani Channamma College of Horticulture, Arabhavi, Gokak, dist Belagavi, University of Horticultural Sciences, Bagalkot (Karnataka), to determine the appropriate time of planting for obtaining higher yield. Experiment comprises of 4 dates of planting *viz*., 1st of June, July, August and September, 2017. Tuber planting on 1st June took minimum number of days (8.48) for sprouting, maximum sprouting percentage (99.00), minimum days (17.94) to flowering, maximum number of branches (4.62) per plant and maximum vine length (89.28 cm). The early harvest and higher yield per hectare was obtained in the 1st June planting than 1st September planting.

Keywords: karchikai, *Momordica cymbalaria*, planting date, yield

Introduction
Karchikai (*Momordica cymbalaria*) is a perennial herbaceous climber, belongs to the family cucurbitaceae. It is widely distributed in the tropical regions of Africa and India. It is found in South Indian states of Andhra Pradesh, Maharashtra and Tamil Nadu as a weed. The nutritional studies of the fruits of karchikai have reported that they possess a high level of calcium, potassium and vitamin c, in addition to its high crude fibre content. The fruit extracts of *M. cymbalaria* were shown to have antidiabetic (Grover *et al*., 2002) [5], hypolipidimic, antiulcer, antidiarrhoel, antiovulary and also menstrual irregularities (Parvati *et al*., 2002, Rao *et al*., 1999, Koneri *et al*., 2007) [10, 11, 7]. Leaf Tea is used for malaria, wounds, worms, parasites, fever (Fernandes *et al*., 2007) [4] and (Osinubi *et al*., 2008) [9]. Karchikai is used as vegetable by most of the people of North Karnataka, India. However no regular cultivation is practiced because of its bitter taste, a lack of understanding of its nutrient constant. It grows on its own by previous left over tubers in the soil. Planting date is one of the most important factor affecting growth and yield of this crop.
Burki (1996) [2] reported that the early sowing of seeds of tinda speed up the germination days, flowering, fruit setting, maturity of the fruit, vine length and better yield than late sowing. Khan *et al.* (2001) [6] reported that sowing of tinda gourd in March is the best date for higher yield than late sowing. Farooq (1992) [3] stated that sowing in the second week of March gave maximum fruit volume, fruit weight, number of fruits per vine and yield per hectare, whereas minimum duration for flowering and fruit maturity were recorded in late sowing. Latifi *et al*. (2012) [8] reported flowers per plant and auxiliary buds are recorded in 18th April sowing. Adesina and Benjamin (2016) [1] reported that the highest fruit yield per hectare was obtained with April 26th and May 3rd planting dates in case of cucumber.

Materials and Methods
The present research was carried out to study the effect of different planting dates on growth and yield of unexploited cucurbitaceous vegetable karchikai (*Momordica cymbalaria*) under the agro-climatic conditions of northern Karnataka at department of Vegetable Science, Kittur Rani Channamma College of Horticulture, Arabhavi, Belgaum district. The experiment was laid out in Randomized Complete Block Design (RCBD) having four treatments i.e. planting

dates (1st of June, July, August and September 2017) with five replications. The planting of medium sized (50-60 g) tubers was done at the rate of one tuber per hill and with side of the ridge by keeping 60 cm inter ridge spacing and 45 cm plant to plant spacing. All the other pre planting and post planting cultural practices were carried out including leveling, manuring, weeding, hoeing, irrigation, fertilizer and plant protection. The data collected from different treatments were statistically analyzed using Fisher's method of analysis of variance as outlined by Sundararaj *et al.* (1972) [12]. The level of significance used in F-test was 0.05 probabilities. The critical difference (CD) for the treatment comparison was worked out, wherever the F test was found significant at 5% level of significance.

Results and Discussion

The data pertaining to days to sprouting, sprouting percentage, days to flowering, number of branches per plant and vine length (cm) is given in Table 1 and days to first harvest, number of fruits per plant, average fruit weight (g), fruit size (mm), seeds per fruit, yield per plant (g) and yield (kg ha^{-1}) are given in Table 2.

Days to sprouting

The data shows statistically significant variations for planting of tubers on 1st June, July August and September 2017. The minimum number of days (8.48) were recorded for sprouting when it was planted on 1st of June followed by July 1st planting (12.88) days for sprouting. Maximum (16.69) days were recorded by 1st September planted tubers.

Sprouting percentage

The results obtained showed that the sprouting percentage of karchikai tubers were highly significant. Maximum sprouting percentage (99.00) was recorded in 1st June planting and it was significantly different from all other dates of planting. Minimum sprouting percentage (47.20) was noted when the tubers are planted on 1st September.

Days to flowering

The data shows that the results for days to flowering are statistically significant. Maximum number of days taken to flowering (22.73) was recorded in 1st September planting. While minimum days of 17.94 were observed in 1st June planting and it is on par with 1st July planting (18.10).

Number of branches per plant

The difference among the dates of planting with respect to number of branches per vine was highly significant. Maximum number of branches (4.62) was observed when the tubers were planted on 1st June, followed by July planting with (4.02). The minimum number of branches (2.96) was found in case of September planting.

Vine length (cm)

Vine length of karchikai as affected by different planting dates and was found to be significant. Maximum vine length of (89.28 cm) was noted in 1st June planting followed by 1st July (76.72 cm) planting. Minimum vine length was (46.07 cm) observed in 1st September fallowed by August planting and were at par.

Days to first harvest

The treatments had significant differences for number of days to first harvest. The minimum days to first harvest was observed in 1st June (27.36) planting which was followed by 1st July (28.21) planting and they were on par with each other. Maximum number of days taken for first harvest was in September (31.71) planting and which is on par with August planting.

Number of fruits per plant

The maximum number of fruits per plant (35.20) was recorded in 1st June planting being significantly different from other treatments. Minimum number of fruits (14.60) was observed in 1st September planting and it was followed by 1st August planting and they were at par.

Average fruit weight (g)

The maximum average fruit weight (2.17 g) was recorded in 1st June planting and minimum (1.74 g) was recorded in 1st September planting. The results of average fruit weight per plant were on par when they are planted on 1st of August and September.

Fruit size (mm)

Significant results were recorded with length and breadth (21.60 mm and 9.05 mm) respectively in 1st June planting and minimum fruit size (mm) of length (9.65 mm) and breadth (4.64 mm) was observed in 1st September month planting. However, 1st July and 1st August planting were resulted in on par values with respect to fruit size.

Seeds per fruit

The difference among the dates of planting with respect to number of seeds per fruit was highly significant. Maximum number of seeds (3.90) per fruit was observed when the tubers were planted on 1st June followed by July planting with (3.30). The minimum number of seeds (2.23) was found in case of September planting.

Yield per plant (g)

Yield per plant clearly states that there is a significant increase in yield per plant when the tubers are planted on 1st June (65.68 g) followed by July (44.80 g) and lesser yield were recorded in September (15.76 g).

Yield (kg ha^{-1})

The significant data recorded on yield (kg ha^{-1}) as affected by different planting dates. Results showed that maximum yield of (501.80 kg ha^{-1}) were obtained in 1st June planting followed by July planting (339.9 kg ha^{-1}). September planting recorded significantly lower yield (121.60 kg ha^{-1}).

Table 1: Influence of date of planting on days to sprouting, sprouting percentage, days to flowering, number of branches per plant and vine length of karchikai (*Momordica cymbalaria*)

Treatments	Planting dates	Days to sprouting	Sprouting percentage	Days to flowering	Number of branches	Vine length (cm)
T_1	1st June, 2017	8.48	99.00	17.94	4.62	89.28
T_2	1st July, 2017	12.88	72.40	18.10	4.02	76.72
T_3	1st August, 2017	14.61	62.80	20.08	3.40	50.14
T_4	1st September, 2017	16.69	47.20	22.73	2.96	46.07

S.Em. ±		0.20	1.64	0.41	0.07	3.63
CD @ 5%		1.62	5.06	1.26	0.21	11.62

Table 2: Influence of date of planting on days to first harvest, number of fruits per plant, average fruit weight (g), fruit size, seeds per fruit, yield per plant and yield per hectare of karchikai (*Momordica cymbalaria*)

Treatments	Planting dates	Days to first harvest	Number of fruits per plant	Average fruit weight (g)	Fruit size(mm)		Seeds per fruit	Yield per plant (g)	Yield per hectare (kg)
					Length (mm)	Breadth (mm)			
T_1	1st June, 2017	27.36	35.20	2.17	21.60	9.05	3.90	65.68	501.84
T_2	1st July, 2017	28.21	25.00	2.04	18.01	8.04	3.30	44.8	339.99
T_3	1st August, 2017	30.79	16.40	1.80	16.02	6.60	2.86	28.24	215.42
T_4	1st September, 2017	31.72	14.60	1.74	9.65	4.64	2.23	15.76	121.60
S.Em. ±		0.41	1.11	0.10	0.82	0.28	0.09	1.43	9.91
CD @5%		1.25	3.41	0.30	2.53	0.85	0.28	8.25	30.53

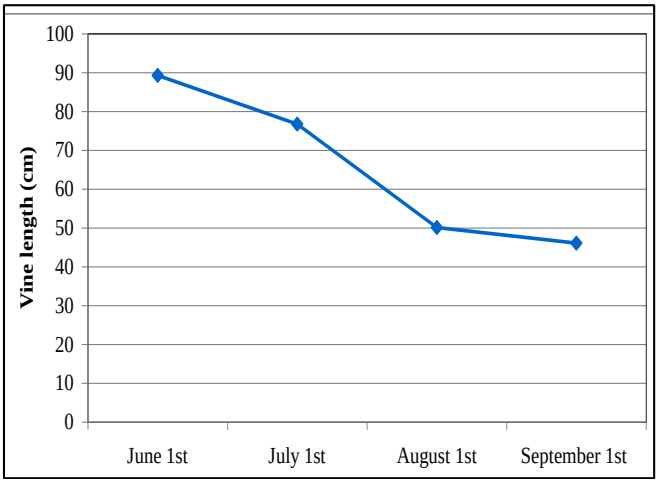

Fig 1: Vine length (cm) as influenced by the different dates of planting of *Momordica cymbalaria* (karchikai)

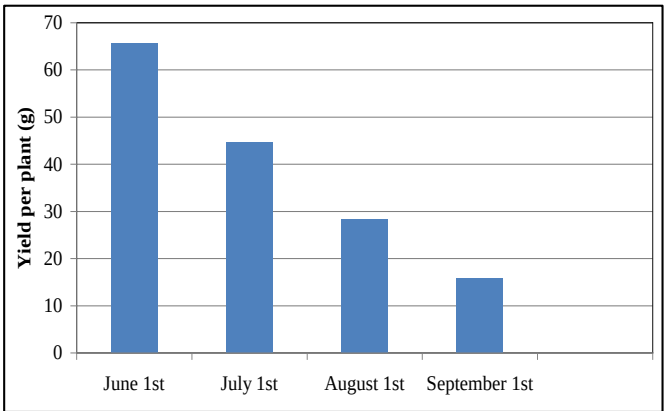

Fig 2: Yield per plant (g) as influenced by the different dates of planting of *Momordica cymbalaria* (Karchikai)

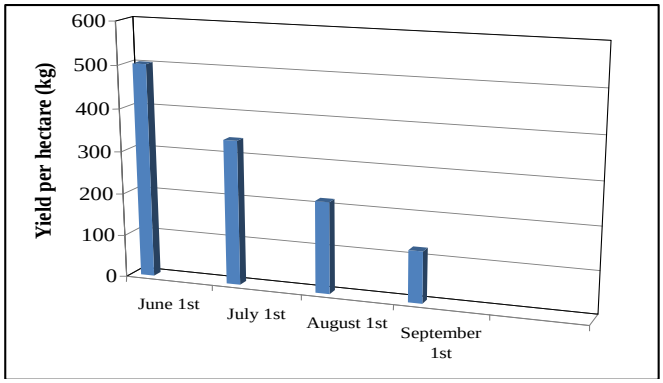

Fig 3: Yield per hectare (kg) as influenced by the different dates of planting of *Momordica cymbalaria* (Karchikai)

Conclusion

Planting dates of unexploited vegetable karchikai (*Momordica cymbalaria*) is unknown since it is region and season specific. Environmental factors are mainly influencing the crop to boost the crop growth and yield. This study showed that *Momordica cymbalaria* is very sensitive to extreme condition of rainfall, but moderate rainfall intensity in time and volume as observed in 1st June and July planting and though it is region and season specific crop among the four date of early planting i.e., 1st June planting resulted in better growth and higher yield.

References

1. Adesina JM, Benjamin AT. Varietal Productivity and Planting date effect on the Growth and Yield of Cucumber (*Cucumis sativus* L.) in Owo, South Western Nigeria. Int. J Hort. 2016; 6:22-23.
2. Burki AQ. Effect of different sowing dates on the yield and quality of tinda gourd var. *fistulosus* under the agro-climatic conditions of dera ismail khan. *M.Sc. Thesis*, Department of Horticulture, Faculty of Agriculture, Gomal University, DI Khan, Pakistan, 1996.
3. Farooq MM. Effect of different time of sowing on the yield and quality of muskmelon under agro-climatic conditions of Dera Ismail Khan. *M.Sc. Thesis*, Department of Horticulture, Faculty of Agriculture, Gomal University, DI Khan, Pakistan, 1992.
4. Fernandes PCN, Lagishetty CV, Panda VS, Naik SR. An experimental evaluation of the antidiabetic and antilipidemic properties of a standardized *Momordica charantia* fruit extract. BMC Compl. Altern. Med. 2007; 7:29.
5. Grover JK, Yadav S, Vats V. Medicinal plants of India with antidiabetic potential. J Ethano Pharmacol. 2002; 81:81-100.
6. Khan AQ, Iqbal M, Jilani MS, Ghaffoor A, Waseem K. Effect of different sowing date on yield of Tinda Gourd *Citrullus vulgaris* var. *Fistulosus*. Online J Biol. Sci. 2001; 1(4):235-237.
7. Koneri R, Balaraman R, Vinoth KM, Hariprasad. Cardioprotective effect of Momordica cymbalaria against experimental myocardial injury induced by isoproterenol. Int J Pharmacol. 2008; 5:2.
8. Latifi M, Barimavandi A, Sedaghathoor S, Lipayi SR. Sowing date and plant population effects on seed yield of *Cucurbita pepo*. Int. J Agric. Biol. 2012; 14:641-644.
9. Osinubi AA, Enye LA, Adesiyun AE, Ajayi GO. Comparative effect of three herbs and standard hypoglycemic agent on blood glucose in normoglycemic,

hyperglycemic and aloxan induced diabetic male rats. Afr J Endocrinol and Metab. 2008; 7:1.
10. Parvathi S, Kumar VJF. Studies on chemical composition and utilization of the wild edible vegetable athalakkai (*Momordica tuberosa*). Plant Foods Hum Nutr. 2000; 57:215-222.
11. Rao BK, Kesavulu MM, Giri R, Appa Rao C. Antidiabetic and hypolipidemic effects of Momordica cymbalaria Hook. Fruit powder in alloxan-diabetic rats. Journal of Ethnopharmacology. 1999; 67(1):103-109.
12. Sundararaj N, Nagraju S, Venkataramu MN, Jagannath MK. Design and Analysis of Field Experiments. *M. Sc*. Series No. 22, University of Agricultural Sciences Banglore, Karnataka, India, 1972.