



EVALUATION OF GROWTH AND YIELD OF CHILLI (CAPSICUM ANNUUM. L) FOR THE COASTAL REGION OF CUDDALORE DISTRICT

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Cite This Article: K. Sha & S. Madhavan, "Evaluation of Growth and Yield of Chilli (*Capsicum Annuum. L*) for the Coastal Region of Cuddalore District", International Journal of Applied and Advanced Scientific Research, Volume 1, Issue 1, Page Number 252-253, 2016

Abstract:

The present investigation was carried out at Department of Horticulture, Faculty of Agriculture, Annamalai University, Tamilnadu. During 2006 with an aim to evaluate chilli genotypes for growth and yield parameter under Tamilnadu coastal region condition. Various morphological parameters viz., plant height at different intervals (cm), number of branches per plant, number of flowers per plant, days to first flowering, days to 50% flowering, fruit length (cm), fruit weight (g) and yield per plant (g) were recorded. Among all the genotypes, Genotype K-2 was rated as superior genotype for plant height, number of branches per plant, number of flowers per plant, number of fruits per plant, fruit yield per plant and fruit weight. Result obtained from present study provided useful information on variability among various morphological traits of okra genotypes which can be used in future breeding programmes. From the present investigation it can be concluded that chilli genotype K-2 performed well for various growth and yield traits under Tamil Nadu condition.

Key Words: Chilli, Genotype, Growth, Yield & Morphological traits

Introduction:

Chilli (*Capsicum annum.L*) also known as Paprika and pepper belongs to family solanaceae, having chromosome number among vegetables ($2n=24$). It is native to South America and grown in tropical and subtropical parts of the world. India is the largest producer of chilli in the world and it is cultivated extensively round the year for its immature fruits and dry pods. Tender fruits are used as vegetables or in culinary preparations as chutney and salads. Mature fruits is called dry pod. Its fruits have high nutritive, medicinal and industrial value and export potential. Its fruits are rich in vitamins, calcium, potassium and other mineral matters. Chilli contains highest amount of vitamin - P which prevents from heart disease. The antioxidant activity of this crop is due to presence of vitamin A, B and C that prevents the oxidative damages by free radicals also helps in lowering down the aging process. Chilli production and productivity is seriously affected by the use of low yielding local varieties, optimal plant density, heavy attack of insect pests, diseases and weeds etc. One of major problem in chilli cultivation is the selection of low yielding varieties due to which productivity in India is less as compared to other countries leading to heavy yield losses. Higher production of this crop is possible by the cultivation of varieties or genotypes which show remarkable enhanced returns, compared to other cultivars grown at same climatic conditions and inputs applied. However, productivity could be improved through careful evaluation and selection of proper chilli varieties based on location and environmental condition. Keeping these considerations in view, the present investigation was carried out with an objective to evaluate the growth and yield parameters of chilli genotypes.

Material and Methods:

The present investigation was carried out at Vegetable Unit, Department of Horticulture, Annamalai University, 2006. Experimental material comprised 12 chilli genotypes (Table 1). All genotypes were evaluated in a randomized block design with three replications. Cultural and agronomic practices were followed as per the standard recommendations and need based plant protection measures were taken up to maintain healthy crop stand. Observations were recorded on five competitive plants excluding border plants in each replication in each genotype for plant height (cm), number of branches per plant, days to 50% flowering, number of fruits per plant, fruit length (cm), fruit weight (g) and yield per plant (g). The data obtained in respect of all the characters has been subjected to statistical analysis by using NPRCSTAT software was used for the statistical analysis of data.

Results and Discussion:

Chilli genotypes exhibit variability with respect to various growth and yield traits (Figure1. Plant height was recorded at 150 days after planting and at the time of last harvesting stage (Figure 1). The Plant height of chilli genotypes at harvesting stage varied from 79.19 to 118.36 cm (Figure 1). The maximum plant height at harvesting stage was recorded in K-2 (122.4 cm) followed by K-1(112.32.4cm). However, minimum plant height was observed in CO-2. This may be because of the variety K-2 capability in tolerance for high salinity and drought. However other varieties were affected by salinity and drought thus the plant parameters such as plant height was affected. Similar findings were reported by Rajaram and Ramamurthy 2001, Maximum number of branches per plant with upright behaviour is considered as desirable trait in chilli. Number of branches per plant varied from 11.96 to 28.16 (Table 1). Among the 11 genotypes, maximum number of branches per plant were reported in genotype K-2 (28.16) followed by K-1 (26.53). The minimum numbers of

branches per plant were observed in CO-2 (11.96). This variation in number of branches per plant might be due to variation in plant height as well as photosynthetic ability of the each genotype. The results from present study are in confirmation with the findings of Patil *et al.* 2002. Days to taken for 50% flowering ranged from 112.10 days to 90.22 days. The maximum days to first flowering was recorded in K-2 (90.22 days) followed by K-1 (95.90 days). Minimum days were taken by CO-2 (112.10 days) (Table 1). The variation might be due to its varietal make up of short vegetative phase which enhance its early flowering. The variation might be due inherit genetic makeup and characteristic feature of hybrid genotype. The result from present investigation are in agreement with the findings of Kumar *et al.* (2003). Number of fruits per plant varied from 26.19 to 78.56. The maximum number of fruits per plant were recorded in genotype K-2 (78.56) followed by K-1 (74.14), whereas minimum number of fruits per plant were observed in PMK-1 and PLR-1. This shows that when number of branches increased number of fruits also increased. Similar results were observed by Nawalagatti *et al.* 1999. Fruit length at marketable stage ranged from 6.18 cm to 2.12 cm (Table 1). Minimum fruit length at marketable stage was observed in CO-2 (2.12 cm). The variation in fruit length may be due to the varietal character of genotypes and also influenced by salinity and drought stress. The results from present investigation are supported by Johari and Kumar. 2005. The yield of fruit per plant is directly related with high number of branches consisting of high number of nodes. Similar results were reported by Kumar *et al.* Fruit yield per plant varied from 109.73 g to 329.16 g. The maximum fruit yield per (2003) plant was recorded in K-2 (329.16 g). Minimum fruit yield per plant was observed in CO-2 (109.73 g). This might be due to high accumulation of photosynthates in fruits which is responsible for higher weight. The yield of fruit per plant is directly related with high number of branches consisting of high number of nodes. Similar results were obtained by Mantano Mata *et al.* 2002

Table 1: Evaluation of chilli (*Capsicum annum. L*) for certain growth and yield characters

	Plant height(cm)	No. of Branches plant ⁻¹	Days taken for 50% flowering	No. of flowers plant ⁻¹	Fruit length (cm)	Fruit girth (cm)	No. of fruits plant ⁻¹	Yield plant ⁻¹	Yield ha ⁻¹
K-1	112.92	26.53	95.90	93.15	5.84	2.02	74.14	310.64	1150.29
K-2	118.36	28.16	90.22	96.34	6.18	2.07	78.56	329.16	1218.87
PUSAJWALA	105.27	23.21	99.05	85.78	5.01	1.89	65.48	274.36	1015.95
PKM-1	101.48	21.56	101.54	81.84	4.68	1.83	61.10	256.00	947.96
CO-3	97.51	19.91	103.21	78.52	4.34	1.77	56.38	236.23	874.75
G-4	109.32	24.88	97.43	89.05	5.38	1.96	69.79	292.42	1082.83
Orathur Local	94.00	18.27	104.82	75.34	4.00	1.47	52.04	218.04	807.40
CO-2	79.42	11.96	112.10	40.21	2.12	2.14	26.19	109.73	406.33
G-5	86.31	14.83	108.07	68.53	3.29	2.43	43.05	180.37	667.91
PMK-1	80.16	13.17	110.56	61.29	2.94	2.05	31.79	133.20	493.23
PLR-1	90.19	16.54	106.43	72.10	3.68	2.89	47.51	199.06	737.11
S.E.D	1.72	0.77	0.75	1.55	0.15	0.2	2.13	3.64	.04
CD=0.05	3.44	1.54	1.49	3.10	0.29	0.4	4.26	7.28	.18

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