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Performance of Different Types of Brinjal for Their Growth and Yield Characters

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ABSTRACT: *The field experiment was conducted to study the performance of thirteen local brinjal (*Solanum melongena*) types under konkan climatic conditions at the Educational Research Farm, Department of Horticulture, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli (M.S.) during the rabi season of the year 2008-2009. All these thirteen brinjal genotypes showed significant variation in growth and yield attributing characters. Wide range of variation was observed in number of fruits per plant as well as yield per plant, per plot and per hectare. The genotypes, SML-1, SML-5, SML-8 and SML-11 were found to be vigorous growing. The genotype SML-3 produced the highest yield (10.18Kg) per plot and was at par with SML-11 (9.67Kg) and SML-13(9.54Kg). The genotype SML-9 produced the lowest yield (4.10Kg) per plot. The genotype SML-3 produced the highest yield per hectare (235.74q/ha) and was at par with SML-11 (223.92q/ha) and SML-13 (220.80q/ha). The lowest yield per hectare of 94.93q/ha was produced by SML-9. Thus considering fruit yield as an important characters, the genotypes SML-3, SML-8 SML-11 and SML-13 were found to be promising as the yield of these genotypes was in the range of 220.49q to 235.74q /ha.*

Keywords: *Brinjal, Solanum melongena, growth parameters, Yield.*

INTRODUCTION

Vegetables constitute an important supplement of our daily diet. They supply proteins, fats, minerals, vitamins and organic acids beside ambient carbohydrates required for normal health at cheaper rates. Among the various vegetables grown in India, Brinjal (*Solanum melongena* L.) has been a staple vegetable in our diet since ancient times. In the *solanaceous* vegetables, brinjal is equally rated high in its nutritional value which can be compared well with tomato (Choudhary,1976).

In Maharashtra the area under brinjal cultivation is about 29400 ha with the production of about 4,79,200 MT, while the productivity is about 163.00 q/ha (Anon, 2008).Though brinjal is having good nutritional and medicinal properties besides having high production potential, cultivars grown in konkan shows wide variation in plant and fruit characters due to consumer's acceptance difference varied from region to region. Thus it resulted in lack of larger area under a single variety.

Agro-climatic conditions of konkan region are ideal for brinjal cultivation. It is grown all the year round due to mild climatic conditions. Under high rainfall conditions also the brinjal crop shows better field stand with good quality fruits. It has occupied prominent place among the popular vegetables grown in konkan and are sold in daily local market. One of the important features of brinjal cultivation in konkan is that it shows wide variation in growth habit as well as fruit characters. In certain pockets of konkan, some local types have dominance in market over the improved ones and are more preferred by the consumers.

Heterozygous nature of the local brinjal cultivars gives a better scope for improvement under konkan conditions for commercialization. Thus now it's a high time to commercialize brinjal crop with due consideration to the variability available in the konkan region. Thus attempt was made for collection and evaluation of local brinjal types grown in Konkan region to study the growth and yield characters.

MATERIAL AND METHODS

The local brinjal genotypes collected from different areas of Konkan region were grown at the Educational Research Farm, Department of Horticulture, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli

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(M.S.) during the rabi season of the year 2008-2009. The thirteen treatments comprising 13 local brinjal genotypes, SML-1 : Bandhtivare local, SML-2 : Sadve local, SML-3 : Suvarn Prathibha, SML- 4 : Vengurla local, SML-5 : Sheravali local, SML-6 : Vetore local, SML- 7 : Majal local, SML-8 : Kasaral local, SML-9 : Goa local, SML-10 – Asond local, SML-11 : CHES-309, SML-12 : Lanja local, SML-13 : Nayashi local were replicated twice in Randomised block design. The spacing adopted was 60 cm in between two rows and 60 cm in between two plants within a row. Thirty plants were maintained in each gross plot of 3.60m x 3.00m. All recommended cultural practices were followed to ensure good crop growth. To record the biometric observations, sampling technique was used. Five plants from the net plot were selected randomly from each treatment per replication. The selected plants were marked by labeling. The growth parameters were recorded at harvest of all the labeled plants and mean values for each observation were used for statistical analysis.

RESULT AND DISCUSSION

All these thirteen brinjal types showed significant variation in growth and yield attributing characters. Wide range of variation was observed in number of fruits per plant as well as yield per plant, per plot and per hectare.

(A) Growth Parameters

It is revealed from the data present in table 1 that, at harvest the genotype SML-8 recorded the highest plant height (83.24cm) and was significantly superior over all other genotypes except SML-1. The lowest plant height was observed in SML-6 (60.48cm) and was at par with many genotypes except the genotypes SML-1 and SML-7. Similar findings in relation to plant height variation in different brinjal genotypes were recorded by Mahaveer *et al.* (2004), Thapa *et al.* (2005). The genotype SML-1 produced the highest number of primary branches per plant (4.33) and was superior over all other genotypes except SML-3. Similar type of variations related to number of primary branches per plant is also reported by the scientist Thapa *et al*. (2005) and Maharana *et al*. (2006) in brinjal genotypes. At harvest the genotype SML-11 produced significantly the highest plant spread (67.40cm) and was significantly superior over all other genotypes under study except SML-5 (65.95cm). The lowest plant spread was produced by the genotype SML-10. These findings were in close conformity with the findings of Ashwani and Khandelwal (2003), Mishra *et al*. (2008) in different brinjal types. The genotype SML-8 reported the highest leaf area (7789.25cm2) per plant and was significantly superior to all other genotypes under study. The lowest leaf area per plant was recorded by the genotype SML-4 (3722.02cm2). The variation in above character was also observed by Ashwani and Khandelwal (2003), Maharana *et al*. (2006), Mishra *et al*. (2008) in brinjal.

(B) Yield Parameters

It is revealed from the data present in table 2 that, the genotype SML-5 required the lowest number of days (71.30) for first harvest. The highest number of days (95.70) was required for the genotypes SML-9 for first harvest. The significant variation in days for first harvest was also observed by Mohanty (2001) and Singh *et al*. (2007) in different brinjal types. The genotype SML-9 recorded the highest number of days (147.62) for last harvest, while the genotype SML-7 recorded the lowest number of days (137.22) for last harvest. The results in relation to significantly varied days for last harvest were also in confirmative with scientists Singh and Gopalkrishnan (1999) reported in brinjal. The genotype SML-5 reported the highest harvesting duration (71.63days) and was significantly superior over all other genotypes. The genotype SML-9 recorded the lowest duration of harvesting (51.92days). Similar findings in relation to period of harvesting were also observed by Singh and Gopalkrishnan (1999) in brinjal.

The genotype SML-3 produced the highest number of fruits per plant (10.30) followed by the genotypes SML-13 (9.75) and SML-6 (9.55).The lowest number of fruits per plant (5.60) was produced by the genotype SML-9. Mahaveer *et al*. (2004) and Maharana *et al*. (2006) also observed significant variation in number of fruits per plant in brinjal. The genotype SML-3 recorded the highest yield per plant (1.279Kg) followed by the genotype SML-11 (1.189Kg) and SML-13 (1.180Kg). The genotype SML-9 produced the lowest yield per plant (0.477Kg). Ashwani and Khandelwal (2003) and Shafeeq *et al*. (2007) in brinjal also reported significant variation in fruit weight per plant.The genotype SML-3 produced the highest yield (10.18Kg) per plot and was at par with SML-11 (9.67Kg) and SML-13(9.54Kg). The genotype SML-9 produced the lowest yield (4.10Kg) per plot. The genotype SML-3 produced the highest yield per hectare (235.74q/ha) and was at par with SML-11 (223.92q/ha) and SML-13 (220.80q/ha). The lowest yield per hectare of 94.93q/ha was produced by SML-9. The above results for significant fruit yield variation

per hectare are in conformity with Mohanty (2001), Thapa *et al*. (2005) and Singh *et al*. (2007) in brinjal.

Table 1
Growth Parameters as Influenced by Different Types of Brinjal

Sr. No.	*Treatments (Variety)*	*Plant Height (cm)*	*No. of Primary Branches Per Plant*	*Leaf Area (cm^2)*	*Plant Spread (cm)*
1	SML-1	74.53	4.32	64.63	5286.22
2	SML-2	65.91	3.17	61.04	4714.56
3	SML-3	63.31	4.175	61.225	6461.31
4	SML-4	67.70	3.25	59.01	3822.52
5	SML-5	67.69	3.55	65.95	4733.57
6	SML-6	61.79	3.10	63.56	5754.24
7	SML-7	71.03	3.62	59.20	5680.40
8	SML-8	83.24	3.25	62.69	7209.67
9	SML-9	64.16	3.00	61.13	5395.75
10	SML-10	60.34	3.32	56.61	4210.97
11	SML-11	62.78	3.87	67.39	3965.92
12	SML-12	68.91	3.30	61.04	4714.88
13	SML-13	69.34	3.45	63.43	6654.76
	Mean	**67.87**	**3.49**	**62.07**	**5277.29**
	S.Em. ±	3.38	0.11	1.76	68..96
	C.D. at 5%	10.71	0.35	5.43	212.49

Table 2
Yield Parameters as Influenced by Different Types of Brinjal

Sr. No.	*Treatments (Variety)*	*Days for first harvest*	*Days for last harvest*	*Period of harves-ting (days)*	*Yield per plot (kg)*	*Yield per hectare (q)*
1	SML-1	83.10	142.55	59.45	6.68	154.66
2	SML-2	88.00	143.30	55.30	6.38	147.83
3	SML-3	79.90	142.82	62.92	10.18	235.74
4	SML-4	84.40	141.32	56.92	5.30	122.84
5	SML-5	71.30	142.92	71.62	8.03	185.91
6	SML-6	88.20	141.00	52.80	4.73	109.64
7	SML-7	82.65	137.22	54.56	6.35	147.06
8	SML-8	85.50	144.95	59.45	9.52	220.48
9	SML-9	95.70	147.61	51.91	4.10	94.93
10	SML-10	84.90	143.14	58.24	8.60	199.21
11	SML-11	83.00	144.61	61.61	9.67	223.92
12	SML-12	86.60	142.92	56.32	6.22	144.07
13	SML-13	77.00	142.37	65.37	9.73	225.23
	Mean	**83.87**	**142.83**	**58.96**	**7.35**	**170.12**
	S.Em. ±	1.93	1.23	2.96	0.21	4.98
	C.D. at 5%	5.96	3.80	9.12	0.66	15.35

CONCLUSION

Thus, all the growth parameters namely plant height, number of primary branches per plant, plant spread and leaf area per plant was significantly varied among all the brinjal types under study. The genotypes, SML-1, SML-5, SML-8 and SML-11 were found to be vigorous growing,

One of the most important character i.e. fruit yield per plant was the highest in the genotype SML-3 and was at par with SML-8, SML-11 and SML-13. Further the fruit yield per hectare was also the highest in the genotype SML-3 and was at par with SML-8, SML-11 and SML-13. Thus considering fruit yield as an important characters, the genotypes SML-3, SML-8 SML-11 and SML-13 were found to be promising as the yield of these genotypes was in the range of 220.49q to 235.74q /ha.

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