

Evaluation of Purple Coloured Eggplant Lines in Winter

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Abstract

A study on the performance of thirteen eggplant lines/variety was conducted at the experimental farm of Olericulture Division, HRC, BARI, Gazipur, Bangladesh during the winter season of 20014-15. The line SM083-2 took minimum 97.3 days to first harvest. BARI Begun 10 produced the longest fruit (30.5 cm), while SM083-2 produced maximum diameter fruit (6.43 cm). The line SM058C produced the highest marketable fruit number per plant (25.2), and the lowest (13.58) was produced by SM 203. While the SM203 produced the heaviest fruit (218.5 g). The line SM232 produced significantly the highest yield (49.06 t/ha) closely followed by SM181 (45.78 t/ha), SM203 (39.54 t/ha), SM253 (36.14 t/ha). Minimum infestation by eggplant fruit and shoot borer was observed in SM269A (9.91%) followed by SM83-2 (10.54%). The results of the present study revealed that the lines SM0232, SM181, SM203, SM075, SM217 and SM058C were found promising for earliness, high yield and pest resistance and may be recommended for preliminary yield trial (PYT).

Introduction

Eggplant is the second most important vegetable crop in respect of total acreage (46,566 ha) and production (3,39,800 ton) in Bangladesh with an average yield of 7.30 tons per hectare [1], which is very low as compared to that in other eggplant producing countries. It is available in the country round the year. There wide range diversity in respect of fruit shape, colour as well as consumer preferences. That is why on the basis of fruit characters, yield, fruit colour, resistance to disease and pests 14 eggplant lines were selected last year. The specialty was all lines were selected on the basis of purple coloured fruit. So the present study was undertaken to study the performance of the selected purple fruited eggplant lines as well as to develop new purple coloured OP/ F1 varieties.

Materials and Methods

The experiment was conducted at the experimental farm of Olericulture Division, Horticulture Research Centre (HRC), Bangladesh Agricultural Research Institute (BARI), Gazipur during the winter season of 2014-15. Thirteen eggplant lines/variety viz., SM058C, SM075, SM083-2, SM181, SM203, SM211, SM217, SM232, SM253, SM267, SM268, SM269A and BARI Begun 10 (as check) were included in the study. The seeds were sown on the seedbed on 25 September 2014. Thirty days old seedlings were transplanted in the main field on 25 October, 2014. The experiment was laid out in RCB design with three replications. The unit plot size was 7.5 x 0.70 m and 10 plants were accommodated in a plot with a plant spacing of 75 cm apart in single row maintaining a row to row distance of 1 m with 30 cm drain. The land was fertilized with cowdung, N, P, K, S, Zn and B @ 10,000 100, 30, 75, 13, 1.5 and 0.8 kg/ha, respectively. One third of the cowdung and half of P and full of S, Zn and B were applied during final land preparation. Rest of cow-dung and P and 1/3 of K were applied as basal in pit. Entire amount of N and rest of K were applied in four equal installment starting from 20 days after transplanting. Rest three installments were applied at vegetative, flowering and initial fruiting

stage. The intercultural operations (weeding, irrigation, insecticide spray etc.) were done as and when necessary. Data on days to 1st harvest, days required for harvesting, fruit length (cm), fruit diameter (cm), marketable fruit number/plant, average fruit weight (g), fruit weight/plant (kg), yield (t/ha), eggplant fruit and shoot borer (EFSB) infestation (%), plant height at 1st harvest (cm) and plant height at last harvest (cm) were recorded from seven randomly selected plants per entry per replication. The information on different characters was statistically analyzed.

Results and Discussion

Growth parameters, yield, yield contributing characters and pest infestation in the evaluated eggplant lines/variety showed significant variation (Table 1). In respect of days to 50% flowering the earliest line was SM 058C (72.3) and the most delayed line were SM 181 and SM 253(87.3). In the investigation, the line SM083-2 took minimum 97.3 days to first harvest, closely followed by SM211 (100.3 days), SM058C (101.3 days) and SM232 (107.3 days), while the most delayed harvested line was SM181 (115.3 days). The shortest days required for fruiting (from flowering to harvest) from the lines SM268 (25 days), SM253 (26 days) and SM232 (27 days).

Significant variation was observed in fruit length and fruit diameter among the lines studied. BARI Begun 10 produced the longest fruit (30.5 cm) followed by SM217 (23.0 cm), while SM83-2 produced the shortest fruit (9.0 cm). Fruits of maximum diameter was produced by the lines SM083-2 (6.43 cm) followed by SM203 (6.03 cm) and SM211 (5.33 cm), while minimum by SM217 (2.73 cm). The highest marketable fruit number per plant (25.2) was found in SM058C followed by SM217 (24.47) and SM181 (23.26), while the lowest number was produced by SM203 (13.58). Average fruit weight is an important criterion to select a good high yielder line. The heaviest fruit was obtained from the line SM203 (218.5 g) closely followed by SM232 (166.9 g) and SM253 (164.5 g), whereas the lighter fruits were observed in SM058C (87.6 g), SM267 (97.5 g). Maximum fruit weight per plant

was obtained by SM232 (3.68 kg) followed by SM181 (3.44 kg), SM203 (2.97 kg), SM253 (2.71 kg).

Lines/variety	Days to 50% plant flowering	Days to first harvest	Days required for fruiting	Fruit length (cm)	Fruit diameter (cm)	Marketable fruit number/ plant	Average fruit weight (g)	Fruit weight/ plant (kg)
SM058C	72.3 g	101.3 g	29.0 a	19.0 d	4.03 f	25.20 a	87.7 k	2.21 e
SM075	83.3 d	110.3 e	27.0 c	14.0 h	4.23 e	22.05 d	100.3 h	2.21 e
SM083-2	70.3 h	97.3 i	27.0 c	9.0 k	6.43 a	16.00 h	108.0 g	1.73 g
SM181	87.3 a	115.3 a	28.0 b	16.0 g	3.63 g	23.26 c	147.6 d	3.44 b
SM 203	85.3 c	112.3 c	27.0 c	12.0 j	6.03 b	13.58 j	218.5 a	2.97 c
SM 211	73.3 f	100.3 h	27.0 c	20.0 d	5.33 c	16.00 h	108.0 g	1.73 g
SM 217	83.3 d	112.3 c	29.0 a	23.0 b	2.73 k	24.47 b	120.3 e	2.94 c
SM 232	80.3 e	107.3 f	27.0 c	19.0 e	3.43 i	22.05 d	166.9 b	3.68 a
SM 253	87.3 a	113.3 b	26.0 d	17.0 f	3.53 h	16.48 g	164.5 c	2.71 d
SM 267	85.3 c	112.3 c	27.0 c	15.0 h	4.53 d	17.69 f	97.5 j	1.73 g
SM 268	86.3 b	111.3 d	25.0 e	21.0 c	3.13 j	19.63 e	97.8 i	1.92 f
SM 269A	83.3 d	112.3 c	29.0 a	14.0 i	3.53 h	15.27 i	113.2 f	1.73 g
BARI Begun 10	79.7 e	108.6 f	78.0	30.5 a	2.80 k	21.87 d	103.5 h	2.26 e
Sig. level	**	**	**	**	**	**	**	**
CV (%)	1.10	1.40	0.90	1.70	1.50	2.05	3.30	4.08

Table 1: Yield and yield contributing characters of thirteen purple fruited eggplant lines/variety.

Lines/ variety	Plant height at first harvest (cm)	Plant height at last harvest (cm)	Fruit yield/ plant (t/ha)	Fruit infestation by BFSB (%)	Fruit shape	Fruit colour
SM 058C	60.6 j	81.2 f	29.45 e	11.82 i	Cylindrical	Light purple
SM 075	75.6 d	86.2 d	29.49 e	17.12 f	Oblong	Purple
SM 083-2	70.6 f	86.2 d	23.04 g	10.54j	Oval	Purple
SM 181	82.6 b	93.2 c	45.78 b	22.44 c	Oblong	Purple
SM 203	78.6 c	95.2 b	39.54 c	23.68 a	Round	Deep purple
SM 211	73.6 e	86.2 d	23.04 g	12.08 h	Oblong	Light purple
SM 217	83.6 a	103.2 a	39.24 c	18.23 e	Long	Deep purple
SM 232	67.6 g	77.2 h	49.06 a	21.56 d	Oblong	Purple
SM 253	64.6 i	78.2 g	36.14 d	23.60 b	Oblong	Deep purple
SM 267	65.6 h	81.2 f	23.01 g	12.12 h	Oblong	Purple
SM 268	65.6 h	83.2 e	25.60 f	13.23 g	Long	Light purple
SM 269A	60.6 j	81.2 f	23.06 g	7.913 k	Cylindrical	Light purple
BARI Begun 10	76.7 d	95.6 b	29.38 e	18.33 e	Cylindrical	Purple
Sig. level	**	**	**	**	-	-

CV (%)	2.40	4.90	4.14	2.90	-	-
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Table 1: Yield and yield contributing characters of thirteen purple fruited eggplant lines/variety (Continuation...).

Significantly the highest yield (49.06 t/ha) was produced by SM232 closely followed by SM181 (45.78 t/ha), SM203 (39.54 t/ha), SM253 (36.14 t/ha), while least was produced by SM267 (23.01 t/ha), SM083-2 (23.04 t/ha) and SM269A (23.06 t/ha). Minimum infestation by eggplant fruit and shoot borer was 7.91% was observed in SM269A followed by SM083-2 (10.54%), while the infestation (%) range was 7.91-23.68. The plant height at first and last harvest was another yield contributing character which range was 60.9 to 83.6 and 81.2 to 103.2 cm, respectively. Five types of fruit shape were observed viz., cylindrical (3 germplasm/variety), oblong (6 germplasm), long (2) round and oval (1 germplasm each), while three types of colour within the purple colour were observed among the germplasm viz., purple (6 germplasm/variety), light purple (4 germplasm), and deep purple (3 germplasm).

Conclusion

Considering earliness, high yield and pest resistance, the lines SM232, SM181, SM203, SM217, SM 075 and SM058C were found promising and may be recommended for preliminary yield trial (PYT) T.

References

1. Anonymous (2011) Book of Agricultural Statistics of Bangladesh. Bangladesh Bureau of Statistics, Ministry of Planning, Government of Peoples Republic of Bangladesh, Dhaka, Bangladesh. pp. 138-148.