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Screening of different brinjal genotypes for resistant reaction against brinjal shoot and fruit borer during Kharif 2024-25

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Abstract
The field experiment on screening of 20 desirable genotypes/varieties of brinjal was carried out to evaluate their comparative performance against brinjal shoot and fruit borer *Leucinodes orbonalis*, during Kharif 2024-2025 with 20 treatments replicated two times, in Randomized Block Design. The significantly lowest shoot infestation of 1.33% was recorded in the genotypes, AKBR-20-03, followed by genotypes AKBR-20-05, AKBR-20-06 and AKBR-20-11 which manifested shoot infestation of 1.33% 1.41%, and 1.52% respectively. The lowest fruit infestation 5.99 per cent was observed in AKBR-20-21, on par with genotypes AKBR-20-05, AKBR-20-03 and AKBR-20-06 with infestation 7.30%, 7.83%, and 7.86% respectively. These genotypes would be of immense use in the breeding program for the development of resistant variety against *L. orbonalis*.

Keywords: Screening, genotypes, varieties, brinjal shoot and fruit borer, *Leucinodes orbonalis*

1. Introduction

Vegetables play important role in our balanced diet, as they are a noble source of vitamins, carbohydrates and minerals needed for virtuous nourishment and are one of the most important components of Indian horticulture, and it is an integral part of our daily diet and consumed by almost all strata of society. Hence vegetable farming has an important place in Indian agriculture due to its nutritional, medicinal, land commercial value. (Choudhary, 1977) [1]. In developed and developing countries like India, where malnutrition abounds vegetables are obligatory. Amongst them, one of the most popular traditional vegetables is Brinjal (*Solanum melongena L.)* also known as Egg plant locally, is a flowering plant and bears edible fruits belonging to family Solanaceae having chromosome number (2n= 24) and is an important vegetable in India cultivated for its immature fruits. It is primarily water, with some protein, fibre and and low is calories and fats.and also a good source of nutrients, minerals, antioxidants,vitamins, dietary fibres, and body building factors and proteins (Matsubara *et al.*, 2005) [3]. One hundred grams of fruit contains 0.7 mg iron, 13.0 mg sodium, 213.0 mg potassium (Nonnecke, 1989) [4], 12.0 mg calcium, 26.0 mg phosphorous, 5.0 mg ascorbic acid and 0.5 international units of vitamin A and provides 25.0 calories (Tindall, 1978) [11]. It has the highest genetic yield potential. It is a rich source of essential nutrients, like protein, carbohydrate, fat and plays a pivotal role in human diet. Brinjal is a prominent solanaceous vegetable crop which is grown over an area of 61.0 million tonnes and produced 59.3 million tonnes globally (2022-23). Due to its high productivity and nutritional value, brinjal is rightfully referred to as the "King of Vegetables". It has a native of India, and China is designated as the secondary center of origin (Thomson and Killey, 1957) [10]. It is primarily water, with some protein, fibre and and low is calories and fats.
India ranks second in terms of vegetable production in the world. In India, the total area under Brinjal is 7.3 lakh hectares with an annual production of 128.01 lakh M T with productivity of 19.1 M T ha-1. In India, (National horticultural Board) West Bengal is the top brinjal-producing state in India, followed by Maharashtra and Bihar. Other notable brinjal-producing states include Odisha, Karnataka, Uttar Pradesh, and Andhra Pradesh.

In Maharashtra, Brinjal is cultivated in an area of 1.68 thousand ha, with an annual production of 276.66 thousand metric tonnes It is largely grown in Pune, Jalgaon, Ahmednagar, Nashik, Aurangabad, and Satara districts of Maharashtra.

In this context, Host–plant resistance is one of the cornerstones of environmentally benign pest management systems. This includes the development of resistant varieties against the target pests. The IPM system, along with host plant resistance, is yielding promising and encouraging results. The insect-resistant varieties have become a crucial element in the success of any ongoing IPM program. Breeders generally consider the varietal development for yield and appearance for consumer preference and neglect its tolerance to borer attack. In view to generate tolerant or resistant variety, screening of the plant material is a fundamental requirement. Therefore, in the present study, different brinjal genotypes have been assessed for their comparative response to the infestation of *L. orbonalis* based on level of infestation.

2. Materials and Methods

2.1. Research Area

The comparative infestation of *L. orbonalis* on twenty brinjal genotypes (Table 1) was studied at Chilli and Vegetable Research Unit, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, during Kharif 2024- 2025 in Randomized Block Design with 20 treatments replicated twice. The site selected was uniform with typical light, medium black cotton soil having fairly good drainage.

2.2 Plant material used and raising of seedlings

Twenty genotypes were assessed for their relative infestation against shoot and fruit borer *L. orbonalis*. Seeds of twenty genotypes were provided by breeder of Chilli and vegetable research unit Dr. PDKV Akola and raised as seedling at Nursery of Chili and Vegetable Research Unit, Dr PDKV, Akola.

2.3 Transplanting of brinjal seedlings

The crop was transplanted at 60 x 60 cm spacing. After transplanting the intercultural operations as well as fertilizer application was done as per university recommendations. Protective irrigations were given after cessation of rains. Due care was taken to maintain the proper growth of the crop. No pesticidal spraying was given.

2.4 Method of Recording Observations

After transplanting field screening of various genotypes was carried out under natural conditions The observa of shoot borer infestation was recorded from 15 to 45 DAT and fruit borer infestation were recorded from 60 to 105 DAT. The incidence of *Leucinodes orbonalis* in the shoot was recorded from five randomly selected plants in each treatment and fruit damage recorded as a number of infested fruits as against the total number of fruits collected from five randomly selected plant in each plot. Both the observations were converted into per cent infestation. The mean per cent shoot infestation of each genotype was calculated using the formula given by Rahman *et al.* (2007) [6] and categorized them in different grades as per the infestation level adopted by Subbratnam and Butani (1981) [8].

Table 1: List of Brinjal genotypes along with sources of collection of seeds

Sr. No.	Treatment No.	Genotypes	Source of seed
01	T_1	AKBR-20-01	Chilli and vegetable research unit, Dr. PDKV, Akola
02	T_2	AKBR-20-02	Chilli and vegetable research unit, Dr. PDKV, Akola
03	T_3	AKBR-20-03	Chilli and vegetable research unit, Dr. PDKV, Akola
04	T_4	AKBR-20-05	Chilli and vegetable research unit, Dr. PDKV, Akola
05	T_5	AKBR-20-06	Chilli and vegetable research unit, Dr. PDKV, Akola
06	T_6	AKBR-20-07	Chilli and vegetable research unit, Dr. PDKV, Akola
07	T_7	AKBR-20-08	Chilli and vegetable research unit, Dr. PDKV, Akola
08	T_8	AKBR-20-10	Chilli and vegetable research unit, Dr. PDKV, Akola
09	T_9	AKBR-20-11	Chilli and vegetable research unit, Dr. PDKV, Akola
10	T_{10}	AKBR-20-12	Chilli and vegetable research unit, Dr. PDKV, Akola
11	T_{11}	AKBR-20-13	Chilli and vegetable research unit, Dr. PDKV, Akola
12	T_{12}	AKBR-20-14	Chilli and vegetable research unit, Dr. PDKV, Akola
13	T_{13}	AKBR-20-17	Chilli and vegetable research unit, Dr. PDKV, Akola
14	T_{14}	AKBR-20-19	Chilli and vegetable research unit, Dr. PDKV, Akola
15	T_{15}	AKBR-20-20	Chilli and vegetable research unit, Dr. PDKV, Akola
16	T_{16}	AKBR-20-21	Chilli and vegetable research unit, Dr. PDKV, Akola
17	T_{17}	AKBR-20-23	Chilli and vegetable research unit, Dr. PDKV, Akola
18	T_{18}	AKBR-20-31	Chilli and vegetable research unit, Dr. PDKV, Akola
19	T_{19}	Aruna(C)	Chilli and vegetable research unit, Dr. PDKV, Akola
20	T_{20}	AKLB-9(C)	Chilli and vegetable research unit, Dr. PDKV, Akola

Table 2: Infestion of shoot and fruit borer on different brinjal genotypes

Treatment	*Shoot infestation (%) 15 DAT	*Shoot infestation (%) 30 DAT	*Shoot infestation (%) 45 DAT	*Mean percentage of infestation of shoot	**Fruit infestation (%) 60 at harvest	**Fruit infestation (%) 75 at harvest	**Fruit infestation (%) 90 at harvest	**Fruit infestation (%) 105 at harvest	**Mean percentage of infestation of fruit	*C.M of damage percentage
T_1	1.93(0.91)	1.86(0.91)	1.55(0.82)	1.77(0.88)	16.96(24.31)	18.63(25.56)	19.60(26.26)	20.52(26.92)	18.92(25.76)	11.58(2.27)
T_2	2.63(1.08)	2.66(1.08)	2.85(1.12)	2.71(1.10)	33.33(35.24)	35.15(36.34)	32.19(34.55)	29.81(33.07)	32.62(34.80)	19.80(2.97)
T_3	1.25(0.75)	1.32(0.77)	1.42(0.79)	1.33(0.77)	7.50(15.88)	7.89(16.30)	7.96(16.38)	7.99(16.41)	7.83(16.24)	5.05(1.50)
T_4	1.24(0.74)	1.30(0.76)	1.45(0.80)	1.33(0.77)	7.50(15.88)	7.90(16.31)	7.96(16.38)	8.10(16.52)	7.30(16.28)	5.06(1.50)
T_5	1.19(0.73)	1.42(0.79)	1.62(0.85)	1.41(0.79)	6.80(15.10)	7.00(15.29)	7.20(15.55)	8.20(16.63)	7.86(15.66)	4.78(1.46)
T_6	1.88(0.91)	1.88(0.91)	1.95(0.93)	1.90(0.92)	34.09(35.70)	33.01(35.05)	33.76(35.50)	30.03(33.21)	32.72(34.87)	19.51(2.94)
T_7	2.56(1.04)	2.86(1.13)	2.60(1.06)	2.67(1.09)	30.55(33.54)	36.12(36.92)	30.57(33.55)	28.71(32.38)	31.48(34.12)	19.14(2.92)
T_8	1.53(0.82)	1.62(0.85)	1.70(0.86)	1.61(0.85)	16.24(23.75)	17.63(24.81)	17.25(24.53)	17.62(24.81)	17.18(24.48)	10.51(2.16)
T_9	1.42(0.79)	1.50(0.81)	1.65(0.86)	1.52(0.82)	17.25(24.53)	18.69(25.60)	19.36(26.09)	20.30(26.76)	18.90(25.74)	11.45(2.26)
T_{10}	1.55(0.83)	1.65(0.85)	1.89(0.90)	1.69(0.86)	17.29(24.56)	18.50(25.46)	19.60(26.26)	23.69(29.05)	19.77(26.38)	12.03(2.31)
T_{11}	2.41(1.03)	2.50(1.01)	2.70(1.09)	2.53(1.06)	31.12(33.89)	31.72(34.26)	30.54(33.53)	27.16(31.40)	30.13(33.27)	18.31(2.85)
T_{12}	2.16(0.97)	1.70(0.87)	1.74(0.88)	1.86(0.84)	16.90(24.26)	17.89(25.01)	18.92(25.77)	19.60(26.26)	18.32(25.29)	11.27(2.23)
T_{13}	1.95(0.92)	1.56(0.83)	1.84(0.91)	1.78(0.89)	18.85(25.72)	19.63(26.28)	22.25(28.13)	24.60(29.72)	21.33(27.49)	12.96(2.40)
T_{14}	1.60(0.84)	1.65(0.86)	1.85(0.91)	1.70(0.87)	21.52(27.62)	22.25(28.13)	22.95(28.61)	24.95(29.95)	22.91(28.59)	13.83(2.48)
T_{15}	2.30(1.01)	2.46(1.04)	2.53(1.04)	2.43(1.04)	30.30(33.38)	31.20(33.94)	30.08(33.24)	29.60(32.94)	30.29(33.38)	18.35(2.86)
T_{16}	1.88(0.91)	1.90(0.90)	1.96(0.93)	1.91(0.92)	6.28(14.50)	6.39(14.64)	6.91(15.23)	4.38(12.00)	5.99(14.16)	4.24(1.37)
T_{17}	2.23(1.00)	2.50(1.05)	2.56(1.07)	2.43(1.04)	35.63(36.63)	36.47(37.13)	33.64(35.43)	32.82(34.93)	34.64(36.04)	20.84(3.04)
T_{18}	1.75(0.88)	1.80(0.89)	1.85(0.91)	1.80(0.89)	33.63(35.42)	30.75(33.66)	31.64(34.21)	30.50(33.50)	31.63(34.34)	18.98(2.90)
T_{19}	1.56(0.83)	1.65(0.86)	1.66(0.86)	1.62(0.85)	33.60(35.41)	33.23(35.18)	31.94(34.40)	30.61(33.58)	32.34(34.65)	19.18(2.92)
T_{20}	2.36(1.02)	2.45(1.04)	2.56(1.07)	2.45(1.04)	21.50(27.61)	22.63(28.39)	23.61(29.06)	24.65(29.75)	23.09(21.70)	14.25(1.52)
S.E.M	0.08	0.09	0.09	0.10	1.43	2.04	1.79	1.60	0.71	0.07
CD @5%	0.26	0.28	0.26	0.31	4.26	6.10	5.36	4.79	2.13	0.22
C.V.	9.19	10.12	9.12	10.97	7.45	10.45	9.20	8.28	3.67	3.04

Figures in * parentheness are square root transform value and ** are arc sine transformed value
DAT: Days after transplanting

3.1.4 Reaction of brinjal genotypes against Shoot and fruit borer

The significant variation was observed among tested genotypes/varieties of brinjal in terms of shoot infestation at vegetative stage of the crop in the field against *L. orbonalis* during kharif 2024-25.

Shoot Infestation of shoot and fruit borer at 15 DAT

The data presented in Table 2 and depicted in fig.1.The mean per cent of shoot infestation recorded in genotypes range from 1.19- 2.63 percent. Among tested 20 genotypes significantly lowest shoot infestation 1.19% was recorded in the genotypes AKBR-20-06 and these genotypes was at par with AKBR-20-05(1.24%), AKBR-20-03(1.25%), AKBR-20-11 (1.42%), AKBR-20-10 (1.53%) AKBR-20-12 (1.55%), Aruna (1.56%), AKBR-20-19 (1.60%), AKBR-20-31 (1.75%), AKBR-20-21 (1.88%), AKBR-20-01 (1.93%), AKBR-20-07 (1.88%), AKBR-20-17 (1.95%), AKBR-20-14(2.16%) respectively giving the resistant reaction against shoot and fruit borer.

The next best set of genotypes AKBR-20-23(2.23%), AKBR-20-20 (2.30%), AKLB-9 (2.36%), AKBR-20-13 (2.41%), AKBR-20-08 (2.56%).

Whereas, the maximum fruit borer infestation was reported on genotypes AKBR-20-02(2.63%) and has significantly higher borer infestation than on rest of the genotypes studied.

Shoot Infestation of shoot and fruit borer at 30 DAT

The data presented in Table 2 observed that the significantly minimum shoot infestation of 1.30% was reported in AKBR-20-05 genotypes, which were at par with AKBR-20-03(1.32%) and AKBR-20-06(1.42%) followed by AKBR-20-11(1.50%), AKBR-20-17(1.56%), AKBR-20-10(1.62%), AKBR-20-12(1.65%), AKBR-20-19(1.65%), Aruna (1.65%), AKBR-20-14 (1.70%), AKBR-20-31 (1.80%) all being at ascending order.

The maximum shoot and fruit borer infestation were observed on genotypes AKBR-20-08(2.86%) followed by AKBR-20-02 (2.66%), AKBR-20-13 (2.50%), AKBR-20-23 (2.50%), AKBR-20-20(2.46%), AKLB-9 (2.46%), AKBR-20-21(1.90%), AKBR-20-07(1.88%), AKBR-20-01(1.86%) in descending order.

Shoot Infestation of shoot and fruit borer at 45 DAT

The data presented in Table 2 observed that AKBR-20-03 had least shoot and fruit borer infestation 1.42% and these genotypes was at par with AKBR-20-05(1.45%), AKBR-20-01(1.55%), AKBR-20-06(1.62%) and AKBR-20-11(1.65%), Aruna (1.66%), AKBR-20-10 (1.70%), AKBR-20-14 (1.74%), AKBR-20-17(1.84%), AKBR-20-19 (1.85%) and AKBR-20-31(1.85%), AKBR-20-12(1.89%), AKBR-20-07 (1.95%), AKBR-20-21 (1.96%), AKBR-20-20 (2.53%).

The highest shoot and fruit borer infestation was noted on genotype AKBR-20-02 with 2.85% fruit borer infestation followed by AKBR-20-13 (2.70%), AKBR-20-08 (2.60%), AKBR-20-23 (2.56%), AKLB-9(2.53%).

Shoot infestation at 30 DAT to 45 DAT

Twenty brinjal genotypes were screened in the field under natural condition during kharif 2024-25. The infestation of *Luicinodes orbonalis* on twenty different genoypes of brinjal was recorded from15 to 45 DAT. The shoot infestation caused by *L orbonalis* ranged from 1.33 to 2.71 per cent. Among all tested genotypes, AKBR-20-03 were least preferred by *L. orbonalis*, recording significantly lowest shoot infestation (1.33%) followed by AKBR-20-05(1.33%), AKBR-20-06(1.41%), AKBR-20-11(1.52%), AKBR-20-10 (1.61%), Aruna (1.62%), AKBR-20-12 (1.69%), AKBR-20-19 (1.70%), AKBR-20-01(1.77%), AKBR-20-17 (1.78%), AKBR-20-31 (1.80%, AKBR-20-14(1.86%), AKBR-20-07 (1.90%), AKBR-20-21(1.91%) recorded the shoot infestation below 2% and were categorized as the Resistant category. and AKBR-20-20 (2.43%), AKBR-20-23 (2.43%), AKLB-9 (2.45%), AKBR-20-13 (2.53%), AKBR-20-08 (2.67%), AKBR-20-02 (2.71%) recorded the shoot infestation between 2.1-3.0% and were categorised as moderately resistant.None of the genotypes were categorised as susceptible and highly susceptible in percentage of shoot infestation.

Fruit Infestation of shoot and fruit borer at 60 DAT

The data presented in Table 2 observed that at 60 DAT the shoot and fruit borer infestation was significantly lower in the genotype AKBR-20-21 (6.28%) and it was at par with AKBR-20-06(6.80%), AKBR-20-05(7.50%) and AKBR-20-03 (7.50%).

The AKBR-20-10 was the next better genotype which recorded 16.24% fruit borer infestation. It was followed by 16.90% on AKBR-20-14 followed by AKBR-20-01, AKBR-20-11, AKBR-20-12, AKBR-20-19, AKBR-20-17 and AKLB-9 with 16.96%, 17.25%,17.29%, 21.52%, 18.85% and 21.50% fruit borer respectively.

Maximum infestation of fruit borer (35.63%) was observed on AKBR-20-23 which was significantly more than the fruit borer on rest of the genotypes followed by AKBR-20-07, AKBR-20-31, Aruna, AKBR-20-02, AKBR-20-13, AKBR-20-08, AKBR-20-20 with 34.09%, 33.63%, 33.60%, 33.33%, 31.12%, 30.55%, 30.30% fruit borer infestation respectively.

Fruit Infestation of shoot and fruit borer at 75 DAT

The data presented in Table 2 observed that significantly least shoot and fruit borer infestation was noted on AKBR-20-21 (6.39%) at 75 DAT and it was at par with AKBR-20-06 (7.00%), AKBR-20-03 and AKBR-20-05 with 7.89% and 7.90% fruit borer infestation respectively.

Medium fruit borer infestation were reported on AKBR-20-10, AKBR-20-14, AKBR-20-12, AKBR-20-01, AKBR-20-11, AKBR-20-17, AKBR-20-19 and AKLB-9 with 17.63%, 17.89%, 18.50%, 18.63%, 18.69%, 19.63%, 22.25%, 22.63% respectively.

The highest fruit borer infestation was noted on genotype AKBR-20-23 with 36.47% fruit borer infestation and it did not differ statistically than the infestation 36.12%, 35.15%, 33.23%, 33.01%, 31.72%, 31.20%, and 30.75% recorded on AKBR-20-08, AKBR-20-02, Aruna, AKBR-20-07, AKBR-20-13, AKBR-20-20, and AKBR-20-31 respectively.

Fruit Infestation of shoot and fruit borer at 90 DAT

The data presented in Table 2 observed that at 90 DAT genotype AKBR-20-21 reported significantly very less shoot and fruit borer infestation (6.91%) among all the genotypes screened which was at par with the genotypes AKBR-20-06(7.20%), AKBR-20-03(7.96%) and AKBR-20-05 (7.96%).

Maximum fruit borer infestation (33.76%) was observed on AKBR-20-07 genotypes which was followed by AKBR-20-23 (33.64%), AKBR-20-02 (32.19%), Aruna (31.94%), AKBR-20-31 (31.64%), AKBR-20-08 (30.57%), AKBR-20-13(30.54%), AKBR-20-20 (30.08%), AKLB-9 (23.61%), AKBR-20-19 (22.95%), AKBR-20-17(22.25%), AKBR-20-01 (19.60%), AKBR-20-12 (19.60%), AKBR-20-11 (19.36%), AKBR-20-14 (18.92%), AKBR-20-10 (17.25%) which had higher fruit borer infestation in descending order.

Fruit Infestation of shoot and fruit borer at 105 DAT

The data presented in Table 2 observed that genotypes AKBR-20-21 had noticed minimum fruit borer infestation (4.38%) and it was effective amongst all the genotypes tested also at par with the genotype AKBR-20-03 (7.99%).

The maximum fruit borer infestation were observed on genotype AKBR-20-23 (32.82%) followed by Aruna (30.61%). and both genotypes had significantly higher fruit borer infestation than rest of the genotypes.

AKBR-20-31 (30.50%), AKBR-20-07 (30.03%), AKBR-20-02 (29.81%), AKBR-20-20 (29.60%), AKBR-20-08 (28.71%), AKBR-20-13(27.16%), AKBR-20-19 (24.95%), AKLB-9 (24.65%), AKBR-20-17 (24.60%), AKBR-20-12 (23.69%), AKBR-20-01 (20.52%), AKBR-20-11 (20.30%), AKBR-20-14 (19.60%), AKBR-20-10 (17.62%), AKBR-20-06(8.20%) and AKBR-20-05(8.10%) are the next genotypes which had higher fruit borer infestation in descending order.

Fruit infestation (number basis) at 60 to 105 DAT

The findings of fruit infestation on number basis by *L. orbonalis* revealed that out of tested twenty genotypes, AKBR-20-21 recorded significantly lowest fruit infestation of 5.99 per cent, which was followed by the genotypes, AKBR-20-05(7.30%), AKBR-20-03(7.83%), AKBR-20-06(7.86%) recorded the fruit infestation less than 15 per cent were categorized as the resistant genotypes, and the genotypes AKBR-20-10(17.18%), AKBR-20-14(18.32%), AKBR-20-11 (18.90%), AKBR-20-01(18.92%), AKBR-20-12 (19.77%), AKBR-20-17 (21.33%), AKBR-20-23 (22.91%), AKLB-9© (23.09%) were recorded the fruit infestation between 16-25% and were categorized as moderately resistance genotypes. The infestation of fruit borer ranged from 26-40% on the genotypes AKBR-20-13(30.13%), AKBR-20-20 (30.29%), AKBR-20-08(31.48%), AKBR-20-31 (31.63%), Aruna ©(32.34%), AKBR-20-02 (32.62%) AKBR-20-07(32.72%), AKBR-20-23 (34.64%) ranged from 26 to 40 and were categorized as susceptible genotype

Cumulative Mean of shoot and fruit borer infestation on different brinjal genotypes

Data in respect of per cent mean shoot and fruit infestation due to the *L. orbonalis* during kharif 2024-25 are presented in Table 3 and Fig. 1. The results on shoot and fruit borer infestation by *L. orbonalis* revealed the infestation ranged from 4.24 to 20.84 per cent. Among the tested 20 genotypes AKBR-20-21 was found significantly superior genotype over rest of the genotype recording 4.24% infestation. Which was at par with the genotypes AKBR-20-06, AKBR-20-03 and AKBR-20-05 with 4.78%, 5.05% and 5.06% fruit borer infestation respectively. The next best genotypes were AKBR-20-10 (10.51%), AKBR-20-14(11.27%), AKBR-20-01 (11.58%) and AKBR-20-11(11.45%). Significantly maximum fruit borer infestation was observed on genotype AKBR-20-23 (20.84%) and it followed by AKBR-20-02(19.80%), AKBR-20-07(19.51%), Aruna (19.18%), AKBR-20-08(19.14%), AKBR-20-31 (18.98%), AKBR-20-20 (18.35%), AKBR-20-13 (18.31%), AKLB-9 (14.25%), AKBR-20-19(13.83%), AKBR-20-17(12.96%), AKBR-20-12(12.03%) in descending order.

The data presented in table 3 revealed that, AKBR-20-03, AKBR-20-05, AKBR-20-06, AKBR-20-11, AKBR-20-10, Aruna, AKBR-20-12, AKBR-20-19, AKBR-20-01, AKBR-20-17, AKBR-20-31, AKBR-20-14, AKBR-20-07, AKBR-20-21 recorded the per cent of shoot infestation below 2 and were categorized as the Resistant category and AKBR-20-20, AKBR-20-23,AKLB-9, AKBR-20-13, AKBR-20-08, AKBR-20-02 recorded the per cent of shoot infestation between 2.1-3.0 and were categorised as moderately resistant.

Table 3: Categorization of brinjal genotypes for their tolerance or susceptible to shoot and fruit borer

Grade	Per cent infestation of Shoot	Genotype	Damage per cent
Tolerant	<2	AKBR-20-03	1.33
		AKBR-20-05	1.33
		AKBR-20-06	1.41
		AKBR-20-11	1.52
		AKBR-20-10	1.61
		Aruna©	1.62
		AKBR-20-12	1.69
		AKBR-20-19	1.70
		AKBR-20-01	1.77
		AKBR-20-17	1.78
		AKBR-20-31	1.80
		AKBR-20-14	1.86
		AKBR-20-07	1.90
		AKBR-20-21	1.91
Moderately tolerant	2.1-3.0	AKBR-20-20	2.43
		AKBR-20-23	2.43
		AKLB-9©	2.45
		AKBR-20-13	2.53
		AKBR-20-08	2.67
		AKBR-20-02	2.71
Susceptible	3.1-5.0	Nil	
Highly susceptible	>5.0	Nil	

Grade	Percent infestation of fruit	Genotype	Damage per cent
Tolerant	<15	AKBR-20-21	5.99
		AKBR-20-05	7.30
		AKBR-20-03	7.83
		AKBR-20-06	7.86
Moderately tolerant	16-25	AKBR-20-10	17.18
		AKBR-20-14	18.32
		AKBR-20-11	18.90
		AKBR-20-01	18.92
		AKBR-20-12	19.77
		AKBR-20-17	21.33
		AKBR-20-23	22.91
		AKLB-9©	23.09
Susceptible	26-40	AKBR-20-13	30.13
		AKBR-20-20	30.29
		AKBR-20-08	31.48
		AKBR-20-31	31.63
		Aruna©	32.34
		AKBR-20-02	32.62
		AKBR-20-07	32.72
		AKBR-20-23	34.64
Highly susceptible	>40	Nil	

The genotypes AKBR-20-21, AKBR-20-05, AKBR-20-03, AKBR-20-06 were categorized as the resistant genotypes and the genotype AKBR-20-10, AKBR-20-14, AKBR-20-11, AKBR-20-01, AKBR-20-12, AKBR-20-17, AKBR-20-23, AKLB-9© and were categorized as moderately resistance genotypes. The infestation of fruit borer on the genotypes AKBR-20-13, AKBR-20-20, AKBR-20-08, AKBR-20-31,Aruna©, AKBR-20-02, AKBR-20-07, AKBR-20-23 ranged from 26 to 40 and were categorized as susceptible genotypes.

4. Discussion

The present findings of screening are conformity with the results of many researchers such as Choudhary *et al.* (1977) [1] who investigated the relative response of different varieties against *L. orbonalis* under field conditions and found the shoot infestation ranged in between 1.62 to 47.28 per cent. Aruna variety manifested fruit infestation of 32.34 per cent as reported by Patil *et al.* (2019) [5] Early observation on pest infestation in Aruna variety found by Subramanyam and Butani which partially in conformity with the result of the present investigation. The present findings also get supports from the findings of Devi *et al.* (2015) [2] observed minimum mean infestation in fruits of the genotype, Panjab Sadabahar (7.18%), 2010/BRLVAR-3 (9.54%), 2010/BRLVAR-1 (5.20%), 2010/BRLVAR-4 (5.28%), while maximum mean infestation in fruits (weight basis) recorded in Swarna mani (35.58%). As per the reports of Srinivasan (2009) [7] no brinjal cultivar was completely reststance from shoot and fruit borer infestation. Vrunda *et al*. (2021) [9] tested twenty two genotypes/ varieties of brinjal and observed that significantly lower shoot infestation 0.89% was recorded in the cultivar Susa local, followed by genotypes AKB-46, AKB-62 and Jayant which manifested the shoot infestation of 1.92%, 1.99%, and 2.04% respectively.

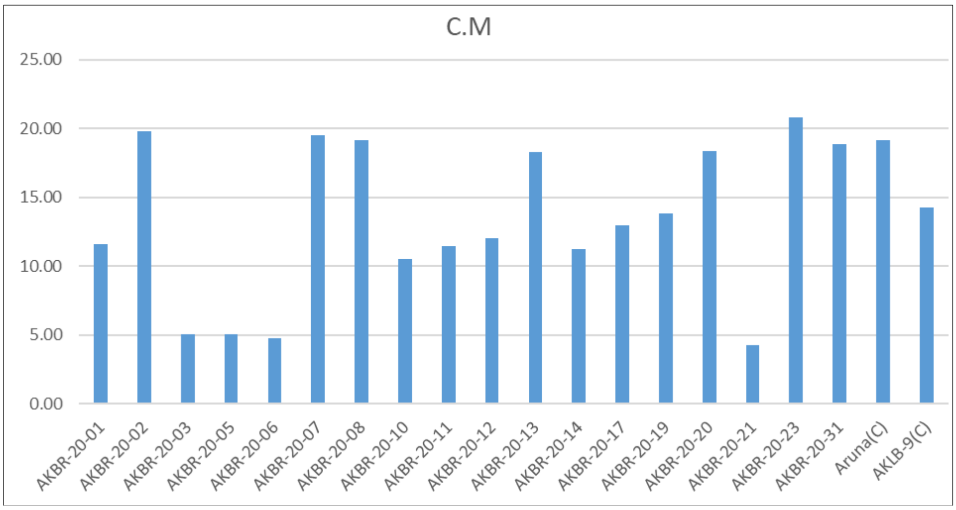

Fig 1: Cumulative Mean of damage percentage of shoot and fruit borer of various brinjal genotypes during kharif 2024-25

5. Conclusion

The conclusions derived from the data obtained in the present investigation on Screening of brinjal genotypes for resistance against *L. orbonalis* are listed below.

Brinjal genotypes AKBR-20-21, AKBR-20-06, AKBR-20-03 and AKBR-20-05, are resistant to shoot and fruit borer with significantly minimum infestation of shoot of fruit borer. These genotype are identified as a source of resistance and could be used in breeding programme and development of IPM strategies.

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