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Screening of available germplasm for resistance to phomopsis blight in Brinjal

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Abstract
The present investigation was conducted to screen 89 genotypes of brinjal under field conditions against phomopsis blight. Among these, seven genotypes, *viz*., Annamalai, IC-381562, IC-397557, BCB-464, IC-090981, K-420590 and IC-456323 exhibited resistance to leaf blight, whereas remaining genotypes were susceptible to the leaf blight. 40 genotypes, *viz*., IC-074207, JB-69, IC-354867, BBC-24, C0-5, IC-111010, SH-B-118, SH-B-149, Annamalai, IC-4563, IC-089818, DBL-24, IC-383195, DRNKV-104, IC-104083, IC-381562, IC-397557, SH-B-148, BCB-464, IC-090981, SH-B-124, Azad Kranti, IC-375858, SH-B-142, S-104, SH-B-151, S-103, S-108, S-101, S-109, SH-B-170, SH-B-130, SH-B-161, SH-B-420, SH-B-173, SH-B-191, Arka Kusmakar, K-420590, IC-090063 and IC-456323 were found resistant, whereas remaining genotypes were moderately resistant to highly susceptible to fruit rot. Seven genotypes, *viz*., IC-090940, Pusa Ankur, BBC-24, JB-8, Pusa Upkar, IUBC-116-135 and IC-410129 were found susceptible, whereas remaining genotypes were resistant to stem blight.

Keywords: Brinjal, Genotypes, Screen, Phomopsis blight, Resistance.

Introduction
Brinjal (*Solanum melongena* L.) also known as aubergine or eggplant that belong to family Solanaceae, is one of the principal vegetable crops of India (Sekara *et al.*, 2007) [16]. It is locally known as "wangun" in Kashmir. India is the second largest producer of brinjal after China where it is cultivated throughout the country round the year except in Kashmir where it is cultivated only as summer season crop. In India, brinjal is grown on an area of 0.37 million ha with the production of 12.80 million MT at an average productivity of 17.54 T ha^{-1}. While in Jammu and Kashmir the area covered by this crop is 0.0025 million ha with the production of 0.045 million MT and productivity of 18.24 T ha^{-1} (Anonymous, 2018) [2]. Brinjal is described as the "king of vegetables" due to it's versatility in use in Indian food (Choudhary and Gaur, 2009; Singh *et al*., 2014) [4, 17]. Besides containing good quantity of essential nutrients it has several medicinal properties and has got decholestrolizing property primarily due to presence of polyunsaturated fatty acids (linoleic and lenolenic) present in flesh and seeds of fruit in higher amount. Brinjal is susceptible to a wide range of diseases that causes severe losses in all phenological stages of growth and development. Phomopsis blight (*Phomopsis vexans*), Leaf spots (*Alternaria melongenae*), Damping-off (*Pythium aphanidermatum*), Wilt *(Verticilium dahlia*), Bacterial wilt *(Pseudomonas solanacearum and Ralstonia solanacearum*), Little leaf *(Phytoplasma*) and Root knot of brinjal (*Meloidogyne incognita*) are most significant and widespread diseases (Rangaswami and Mahadevan, 2002) [14]. Among these various diseases, the most destructive and one of the major constraints of successful brinjal cultivation is Phomopsis blight caused by *Phomopsis vexans* (Khan *et al.*, 2002; Islam *et al.*, 2010; Jayaramaiah *et al.*, 2013) [9, 5, 6]. Phomopsis blight ranks second only to bacterial wilt in destructiveness of brinjal (Meah *et al*., 2002) [11] reducing the yield and marketable value of crop from 20 to 50 per cent (Thippeswamy *et al*., 2005; Akhtar *et al*., 2008; Beura *et al*., 2008; Pandey, 2010; Jayaramaiah *et al*., 2013) [20, 1, 3, 12, 6]. Such a huge loss in fruit yield due to Phomopsis blight was attributed to decreased fruit number (34.8%) and fruit weight (17.0%) as reported by Kidasha (2010) [10] and due to poor seed germination and plant stand (Thippeswamy *et al*., 2005) [20]. Phomopsis blight affects the crop from seedling to maturity (Singh, 1992) [18]. The initial spots on leaves appear as small circular spots which latter become grey to brown with a light coloured centre. Lesions are also developed on petiole

and stem causing blight in affected portions. Pale to light brown sunken spots develop on the fruit surface and these symptoms enlarge and become depressed (Ronald, 2009) [15]. In Kashmir, severe epidemics resulted in yield loss upto 47% (Nisar *et al*., 2015). The disease has attained economic status in Kashmir. The pathogen **is** usually soil as well as seed borne and therefore it is very difficult to manage the disease by chemical control method alone. Chemical management of the disease also leaves behind the many toxic residues in the soil affecting the consumers health. To overcome the problems posed by phomopsis blight in commercial cultivation of brinjal, the resistant genotype can be used as a source of resistance to this disease in resistant breeding. In view of above fact, there is need for searching of inherent durable resistance in brinjal genotypes, so that same genotypes could be used for growing as well as breeding purpose for further improvement. The present study was conducted to screen the available genotypes to find out durable resistance against Phomopsis vexans.

Materials and Methods

Preparation of fungal inoculum

The 15 day old culture of *Phomopsis vexans* was isolated on Potato dextrose agar medium from Phomopsis blight infected sample. The pure culture was used for inoculum preparation. Using sterile needle, pycnidia were dislodged into sterile distilled water. The suspension was filtered through muslin cloth to remove bigger particles. The alpha conidial suspension was adjusted to $1x10^5$ conidia ml^{-1} using hemocytometer and was used for foliar spray using atomizer.

Field screening for resistant genotypes of brinjal against *Phomopsis vexans* (Sacc. & Syd.) Harter

A total of 89 brinjal genotypes were evaluated under field conditions. Seedlings of all 89 brinjal genotypes were raised in nursery and 30 days old seedlings were shifted to fields. From each genotype a total of 15 seedlings were selected (3 rows and 5 plants row^{-1}). After 30 days of transplantation and with all agronomic practices, alpha conidial suspension of *P. vexans* were sprayed and initiation of leaf blight, fruit rot and stem blight symptoms were observed after ten days post inoculation until the crop reached the harvesting stage. Development of fruit rot disease were observed after 45 to 60 days of post inoculation. The disease resistance/ susceptibility of each genotype was recorded as per Kalda *et al.*, 1976 [7] as given below.

For leaf infection	
***Rating index**	**Infestation**
0	No visual symptoms
1	The lowest leaf showing symptoms
2	About 60 per cent of leaves showing disease
3	> 60 per cent of foliage showing disease symptoms
For stem and shoot infection	
***Rating index**	**Infestation**
0	No visual symptoms
1	Stem showing symptom but growing normal
2	Stem partially dead
3	Entire stem permanently wilted and dead
For fruit infestation	
Per cent infestation	**Rating index**
0-20	Resistant (R)
20-40	Moderately resistant (MR)
40-60	Susceptible (S)
> 60	Highly susceptible (HS)

*For working out percentage of plants showing resistance, the rating 0 and 1 were considered as resistant and 2 and 3 as susceptible in case of leaf as well as stem infection. The per cent of plants showing resistance for leaf blight and stem blight infection were then equated to ratting index in the manner 0 to 30-3, 30 to 60-2, 61 to 80-1 and 81to100-0.

Table 1: List of Brinjal genotypes used in the present investigations for screening resistant genotypes

S. No.	Genotypes	S. No.	Genotypes
1	Annamalai	46	IC-456323
2	Arka Keshav	47	IC-5356
3	Arka Kusumakar	48	IUBC-116-135
4	Arka Nidhi	49	Jawahar Brinjal
5	Azad Brinjal	50	JB-18
6	Azad Kranti	51	JB-6
7	BBC-24	52	JB-64
8	BCB-464	53	JB-69
9	CHBR-2	54	JB-8
10	CO-5	55	K-420590
11	DBL-24	56	Local Long
12	DRNKV-104	57	PR-5
13	DRNKV-104-43	58	Pusa Ankur
14	GBL-1	59	Pusa Purple Cluster
15	Green Long	60	Pusa Purple Long
16	IC-074207	61	Pusa Upkar
17	IC-0889900	62	S-101

18	IC-089818	63	S-102
19	IC-089888	64	S-103
20	IC-090063	65	S-104
21	IC-090931	66	S-108
22	IC-090940	67	S-109
23	IC-090981	68	SH-B-101
24	IC-099676	69	SH-B-103
25	IC-104083	70	SH-B-109
26	IC-111010	71	SH-B-110
27	IC-111019	72	SH-B-111
28	IC-111066-02	73	SH-B-118
29	IC-111081	74	SH-B-121
30	IC-111387	75	SH-B-123
31	IC-261801	76	SH-B-124
32	IC-354597	77	SH-B-130
33	IC-354612	78	SH-B-131
34	IC-354867	79	SH-B-142
35	IC-374888	80	SH-B-148
36	IC-374892	81	SH-B-149
37	IC-375858	82	SH-B-151
38	IC-376658	83	SH-B-161
39	IC-381562	84	SH-B-169
40	IC-383102	85	SH-B-170
41	IC-383195	86	SH-B-173
42	IC-397557	87	SH-B-191
43	IC-410129	88	SH-B-420
44	IC-420590	89	Utkal Keshari
45	IC-4563		

Results and Discussion

Screening for resistant genotypes of brinjal against *Phomopsis vexans* (Sacc. & Syd.) Harter under field condition

The results of field evaluation of brinjal genotypes for leaf blight, fruit rot and stem blight disease are presented in Table-2, 3 and 4. Total 89 genotypes were screened under field conditions for resistance to Phomopsis blight and among these, seven genotypes, *viz*., Annamalai, IC-381562, IC-397557, BCB-464, IC-090981, K-420590 and IC-456323 exhibited resistance to leaf blight, whereas remaining genotypes were susceptible to the leaf blight. 40 genotypes, *viz*., IC-074207, JB-69, IC-354867, BBC-24, CO-5, IC-111010, SH-B-118, SH-B-149, Annamalai, IC-4563, IC-089818, DBL-24, IC-383195, DRNKV-104, IC-104083, IC-381562, IC-397557, SH-B-148, BCB-464, IC-090981, SH-B-124, Azad Kranti, IC-375858, SH-B-142, S-104, SH-B-151, S-103, S-108, S-101, S-109, SH-B-170, SH-B-130, SH-B-161, SH-B-420, SH-B-173, SH-B-191, Arka Kusmakar, K-420590, IC-090063 and IC-456323 were found resistant, whereas remaining genotypes were moderately resistant to highly susceptible to fruit rot. Seven genotypes, *viz*., IC-090940, Pusa Ankur, BBC-24, JB-8, Pusa Upkar, IUBC-116-135 and IC-410129 were found susceptible, whereas remaining genotypes were resistant to stem blight. The data indicated that, per cent of plants showing resistance ranged between 6.60 to 73.40 per cent in case of leaf blight, 53.40 to 100 per cent in case of stem blight and in case of fruit rot per cent infestation ranged between 0.00 to 75.76 per cent.

Breeding for the disease resistance has been an effective, economical and practical method of disease control. Cultivation of resistant variety seems to be the best alternative and most economical to keep the activity of Phomopsis blight pathogen under control. In all crop improvement programmes, growing of resistant varieties has been found to be appropriate choice to combat the disease. The use of resistant varieties is perhaps the most desirable method of controlling diseases in crops (Than *et al*., 2008) [19]. This approach, according to Voorrips *et al*. (2004) [21], has been less exploited in fruit and vegetable crops mainly due to the longer time required for breeding and selecting for resistance and the short term advantage of chemical control. Efforts have been made to locate the source of resistance for this disease in India. In the present investigation, the reaction of different genotypes against phomopsis blight was carried out in field conditions. A total 89 brinjal genotypes were screened against brinjal Phomopsis blight under natural condition as described in materials and methods. The data revealed that, among the 89 genotypes evaluated under natural conditions, seven genotypes were found resistant, whereas remaining genotypes were susceptible to the leaf blight, In case of stem blight seven genotypes were susceptible whereas remaining genotypes were resistant and in case of fruit rot 40 genotypes were resistant whereas remaining of genotypes were moderately resistant to highly susceptible. The results are in contrary with findings of Pandey *et al*. (2002) [13] who conducted the experiment to evaluate 41 lines of brinjal under natural condition against Phomopsis blight disease. Among 41 lines evaluated, none of the lines were found resistant to Phomopsis blight. Two varieties *viz*., Ramanagar Giant and KS-233 showed moderate resistance and others showed susceptibility. However both DBR-91 and Baramasi recorded high susceptibility with fruit rot intensity of 4.72 per cent plant^{-1} and per cent fruit infection of 47.5 per cent and 85 per cent respectively. In the present investigation, according to phenotypic analysis many genotypes were found resistant so, by above result it revealed that same can be used in the breeding strategies for the crop improvement programme to develop resistant varieties.

It is not necessary that a genotypes showing resistant response to stem blight must also show resistance against fruit rot or leaf blight (Pandey *et al*., 2002) [13]. Comparative performance

of 89 brinjal genotypes revealed that most of the genotypes showed different pathogen reaction at various stages of phomopsis blight, i.e., leaf blight, stem blight and fruit rot. However, Kalda *et al*., 1977 [8] reported significant correlation between the leaf and stem, leaf and fruit and also to some extent between stem and fruit in respect to disease reaction both at the adult plant and seedling stages. Some of the genotypes like Annamalai, IC-381562, IC-397557, BCB-464, IC-090981, K-420590 and IC-456323 showed similar pathogen response i.e., resistant to leaf blight as well as stem blight and fruit rot. This pathogen response within a particular genotype at different stages is due to genetic characteristics of that genotype where leaf texture, fruit texture, biochemical composition of plant, different colouring components of the plants etc. might be playing major role. This leads to disease development on both stem and fruits at uniform rate in the same prevailing environmental conditions. In another case where leaf blight symptoms are mainly due to primary infection appeared from nursery stage to vegetative growth which do not coincide with stem blight and fruit rot period of plant.

Table 2: Reaction of brinjal genotypes inoculated with conidial suspension of *Phomopsis vexans* (Sacc. & Syd.) Harter against leaf blight disease under field conditions

S. No.	Genotypes	Mean No. of plants	Mean No. of plants showing resistance	% of plant showing resistance	Rating index	Reaction
1	Annamalai	5.00	3.67	73.40	1.00	R
2	Arka Keshav	5.00	2.33	46.60	2.00	S
3	Arka Kusumakar	5.00	2.00	40.00	2.00	S
4	Arka Nidhi	5.00	1.67	33.40	2.00	S
5	Azad Brinjal	5.00	2.33	46.60	2.00	S
6	Azad Kranti	5.00	2.00	40.00	2.00	S
7	BBC-24	5.00	2.33	46.60	2.00	S
8	BCB-464	5.00	3.33	66.60	1.00	R
9	CHBR-2	5.00	1.00	20.00	3.00	S
10	CO-5	5.00	2.33	46.60	2.00	S
11	DBL-24	5.00	2.00	40.00	2.00	S
12	DRNKV-104	5.00	2.33	46.60	2.00	S
13	DRNKV-104-43	5.00	2.67	53.40	2.00	S
14	GBL-1	5.00	3.00	60.00	2.00	S
15	Green Long	5.00	3.00	60.00	2.00	S
16	IC-074207	5.00	2.00	40.00	2.00	S
17	IC-0889900	5.00	2.33	46.60	2.00	S
18	IC-089818	5.00	2.00	40.00	2.00	S
19	IC-089888	5.00	2.33	46.60	2.00	S
20	IC-090063	5.00	2.67	53.40	2.00	S
21	IC-090931	5.00	1.67	33.40	2.00	S
22	IC-090940	5.00	1.67	33.40	2.00	S
23	IC-090981	5.00	3.67	73.40	1.00	R
24	IC-099676	5.00	3.00	60.00	2.00	S
25	IC-104083	5.00	1.00	20.00	3.00	S
26	IC-111010	5.00	2.33	46.60	2.00	S
27	IC-111019	5.00	2.00	40.00	2.00	S
28	IC-111066-02	5.00	2.00	40.00	2.00	S
29	IC-111081	5.00	1.33	26.60	3.00	S
30	IC-111387	5.00	1.67	33.40	2.00	S
31	IC-261801	5.00	2.00	40.00	2.00	S
32	IC-354597	5.00	2.00	40.00	2.00	S
33	IC-354612	5.00	2.00	40.00	2.00	S
34	IC-354867	5.00	2.67	53.40	2.00	S
35	IC-374888	5.00	1.67	33.40	2.00	S
36	IC-374892	5.00	1.67	33.40	2.00	S
37	IC-375858	5.00	2.67	53.40	2.00	S
38	IC-376658	5.00	1.00	20.00	3.00	S
39	IC-381562	5.00	3.33	66.60	1.00	R
40	IC-383102	5.00	2.00	40.00	2.00	S
41	IC-383195	5.00	2.33	46.60	2.00	S
42	IC-397557	5.00	3.33	66.60	1.00	R
43	IC-410129	5.00	1.67	33.40	2.00	S
44	IC-420590	5.00	1.33	26.60	3.00	S
45	IC-4563	5.00	2.00	40.00	2.00	S
46	IC-456323	5.00	3.67	73.40	1.00	R
47	IC-5356	5.00	2.67	53.40	2.00	S
48	IUBC-116-135	5.00	2.33	46.60	2.00	S
49	Jawahar Brinjal	5.00	2.33	46.60	2.00	S
50	JB-18	5.00	1.67	33.40	2.00	S
51	JB-6	5.00	1.67	33.40	2.00	S

52	JB-64	5.00	1.33	26.60	00	S
53	JB-69	5.00	1.33	26.60	3.00	S
54	JB-8	5.00	2.00	40.00	2.00	S
55	K-420590	5.00	3.33	66.60	1.00	R
56	Local Long	5.00	2.67	53.40	2.00	S
57	PR-5	5.00	2.00	40.00	2.00	S
58	Pusa Ankur	5.00	1.67	33.40	2.00	S
59	Pusa Purple Cluster	5.00	0.67	13.40	3.00	S
60	Pusa Purple Long	5.00	0.33	6.60	3.00	S
61	Pusa Upkar	5.00	1.00	20.00	3.00	S
62	S-101	5.00	2.67	53.40	2.00	S
63	S-102	5.00	2.33	46.60	2.00	S
64	S-103	5.00	2.33	46.60	2.00	S
65	S-104	5.00	2.67	53.40	2.00	S
66	S-108	5.00	2.00	40.00	2.00	S
67	S-109	5.00	2.67	53.40	2.00	S
68	SH-B-101	5.00	1.67	33.40	2.00	S
69	SH-B-103	5.00	1.67	33.40	2.00	S
70	SH-B-109	5.00	2.33	46.60	2.00	S
71	SH-B-110	5.00	1.67	33.40	2.00	S
72	SH-B-111	5.00	3.00	60.00	2.00	S
73	SH-B-118	5.00	2.67	53.40	2.00	S
74	SH-B-121	5.00	2.33	46.60	2.00	S
75	SH-B-123	5.00	2.67	53.40	2.00	S
76	SH-B-124	5.00	2.67	53.40	2.00	S
77	SH-B-130	5.00	2.00	40.00	2.00	S
78	SH-B-131	5.00	2.33	46.60	2.00	S
79	SH-B-142	5.00	2.00	40.00	2.00	S
80	SH-B-148	5.00	2.33	46.60	2.00	S
81	SH-B-149	5.00	1.67	33.40	2.00	S
82	SH-B-151	5.00	2.33	46.60	2.00	S
83	SH-B-161	5.00	2.00	40.00	2.00	S
84	SH-B-169	5.00	1.33	26.60	3.00	S
85	SH-B-170	5.00	2.33	46.60	2.00	S
86	SH-B-173	5.00	2.33	46.60	2.00	S
87	SH-B-191	5.00	2.33	46.60	2.00	S
88	SH-B-420	5.00	2.67	53.40	2.00	S
89	Utkal Keshari	5.00	2.33	46.60	2.00	S

Table 3: Reaction of brinjal genotypes inoculated with conidial suspension of *Phomopsis vexans* (Sacc. & Syd.) Harter against fruit rot disease under field conditions

S. No.	Genotypes	Mean No. of fruits plant^{-1}	Mean No. of infested fruits plant^{-1}	% infestation	Reaction
1	Annamalai	9.42	0.03	0.32	R
2	Arka Keshav	6.53	4.15	63.55	HS
3	Arka Kusumakar	10.80	1.58	14.63	R
4	Arka Nidhi	7.83	4.17	53.26	S
5	Azad Brinjal	6.33	1.61	25.43	MR
6	Azad Kranti	11.51	1.72	14.94	R
7	BBC-24	14.00	2.58	18.43	R
8	BCB-464	6.66	1.12	16.82	R
9	CHBR-2	8.16	3.37	41.30	S
10	CO-5	5.50	0.95	17.27	R
11	DBL-24	6.83	1.19	17.42	R
12	DRNKV-104	9.11	0.03	0.33	R
13	DRNKV-104-43	7.26	1.55	21.35	MR
14	GBL-1	7.42	4.93	66.44	HS
15	Green Long	12.42	9.41	75.76	HS
16	IC-074207	5.93	1.13	19.06	R
17	IC-0889900	12.75	3.10	24.31	MR
18	IC-089818	9.50	1.67	17.58	R
19	IC-089888	9.11	4.00	43.91	S
20	IC-090063	9.56	1.71	17.89	R
21	IC-090931	7.13	3.52	49.37	S
22	IC-090940	12.04	4.94	41.03	S
23	IC-090981	8.39	0.62	7.39	R
24	IC-099676	8.76	1.87	21.35	MR

25	IC-104083	9.59	1.83	19.08	R
26	IC-111010	11.10	1.86	16.76	R
27	IC-111019	11.19	2.61	23.32	MR
28	IC-111066-02	11.26	7.30	64.83	HS
29	IC-111081	7.00	I.54	22.00	MR
30	IC-111387	11.33	2.69	23.74	MR
31	IC-261801	11.92	4.64	38.93	MR
32	IC-354597	8.93	6.12	68.53	HS
33	IC-354612	9.76	4.44	45.49	S
34	IC-354867	8.45	1.42	16.80	R
35	IC-374888	11.36	5.76	50.70	S
36	IC-374892	11.10	4.64	41.80	S
37	IC-375858	7.33	1.44	19.64	R
38	IC-376658	12.09	7.17	59.30	S
39	IC-381562	18.00	2.18	12.11	R
40	IC-383102	5.55	2.10	37.84	MR
41	IC-383195	5.91	1.12	18.95	R
42	IC-397557	16.30	3.07	18.83	R
43	IC-410129	10.58	2.70	25.52	MR
44	IC-420590	15.00	10.50	70.00	HS
45	IC-4563	11.85	2.22	18.73	R
46	IC-456323	7.93	0.74	9.33	R
47	IC-5356	15.33	6.38	41.62	S
48	IUBC-116-135	8.16	2.21	27.08	MR
49	Jawahar Brinjal	12.30	5.10	41.46	S
50	JB-18	7.38	1.59	21.54	MR
51	JB-6	8.37	1.95	23.30	MR
52	JB-64	8.53	1.80	21.10	MR
53	JB-69	9.60	1.67	17.39	R
54	JB-8	10.57	4.36	41.25	S
55	K-420590	10.11	1.63	16.12	R
56	Local Long	13.70	2.92	21.31	MR
57	PR-5	7.42	3.06	41.24	S
58	Pusa Ankur	6.01	2.51	41.76	S
59	Pusa Purple Cluster	10.56	5.88	55.68	S
60	Pusa Purple Long	8.33	6.08	72.99	HS
61	Pusa Upkar	9.16	2.57	28.06	MR
62	S-101	9.24	1.21	13.09	R
63	S-102	9.99	2.13	21.32	MR
64	S-103	8.12	1.01	12.44	R
65	S-104	7.12	0.85	11.94	R
66	S-108	10.10	1.76	17.42	R
67	S-109	9.90	1.61	16.26	R
68	SH-B-101	8.10	3.33	41.11	S
69	SH-B-103	8.99	2.99	33.26	MR
70	SH-B-109	15.09	5.70	37.77	MR
71	SH-B-110	12.75	3.10	24.31	MR
72	SH-B-111	8.10	3.33	41.11	S
73	SH-B-118	6.00	1.20	18.67	R
74	SH-B-121	9.61	3.75	39.02	MR
75	SH-B-123	8.97	4.27	47.60	S
76	SH-B-124	13.71	2.72	19.84	R
77	SH-B-130	8.41	1.29	15.34	R
78	SH-B-131	9.79	5.72	58.43	S
79	SH-B-142	12.89	2.47	19.16	R
80	SH-B-148	5.80	0.00	0.00	R
81	SH-B-149	10.49	1.67	15.92	R
82	SH-B-151	11.21	2.09	18.64	R
83	SH-B-161	9.21	1.42	15.42	R
84	SH-B-169	10.70	2.25	21.03	MR
85	SH-B-170	10.62	1.50	14.12	R
86	SH-B-173	8.91	1.30	14.59	R
87	SH-B-191	10.95	1.86	16.99	R
88	SH-B-420	9.14	1.48	16.19	R
89	Utkal Keshari	10.00	4.76	47.60	S

Table 4: Reaction of brinjal genotypes inoculated with conidial suspension of *Phomopsis vexans* (Sacc. & Syd.) Harter against stem blight disease under field conditions

S. No.	Genotypes	Mean No. of plants	Mean No. of plants showing resistance	% of plant showing resistance	Rating index	Reaction
1	Annamalai	5.00	4.00	80.00	1.00	R
2	Arka Keshav	5.00	5.00	100	0.00	R
3	Arka Kusumakar	5.00	5.00	100	0.00	R
4	Arka Nidhi	5.00	5.00	100	0.00	R
5	Azad Brinjal	5.00	5.00	100	0.00	R
6	Azad Kranti	5.00	5.00	100	0.00	R
7	BBC-24	5.00	2.67	53.40	2.00	S
8	BCB-464	5.00	5.00	100	0.00	R
9	CHBR-2	5.00	5.00	100	0.00	R
10	CO-5	5.00	5.00	100	0.00	R
11	DBL-24	5.00	5.00	100	0.00	R
12	DRNKV-104	5.00	5.00	100	0.00	R
13	DRNKV-104-43	5.00	5.00	100	0.00	R
14	GBL-1	5.00	5.00	100	0.00	R
15	Green Long	5.00	5.00	100	0.00	R
16	IC-074207	5.00	5.00	100	0.00	R
17	IC-0889900	5.00	5.00	100	0.00	R
18	IC-089818	5.00	5.00	100	0.00	R
19	IC-089888	5.00	5.00	100	0.00	R
20	IC-090063	5.00	5.00	100	0.00	R
21	IC-090931	5.00	5.00	100	0.00	R
22	IC-090940	5.00	3.00	60.00	2.00	S
23	IC-090981	5.00	5.00	100	0.00	R
24	IC-099676	5.00	5.00	100	0.00	R
25	IC-104083	5.00	5.00	100	0.00	R
26	IC-111010	5.00	5.00	100	0.00	R
27	IC-111019	5.00	5.00	100	0.00	R
28	IC-111066-02	5.00	5.00	100	0.00	R
29	IC-111081	5.00	5.00	100	0.00	R
30	IC-111387	5.00	5.00	100	0.00	R
31	IC-261801	5.00	5.00	100	0.00	R
32	IC-354597	5.00	5.00	100	0.00	R
33	IC-354612	5.00	5.00	100	0.00	R
34	IC-354867	5.00	5.00	100	0.00	R
35	IC-374888	5.00	5.00	100	0.00	R
36	IC-374892	5.00	5.00	100	0.00	R
37	IC-375858	5.00	5.00	100	0.00	R
38	IC-376658	5.00	5.00	100	0.00	R
39	IC-381562	5.00	5.00	100	0.00	R
40	IC-383102	5.00	5.00	100	0.00	R
41	IC-383195	5.00	5.00	100	0.00	R
42	IC-397557	5.00	5.00	100	0.00	R
43	IC-410129	5.00	2.67	53.40	2.00	S
44	IC-420590	5.00	5.00	100	0.00	R
45	IC-4563	5.00	5.00	100	0.00	R
46	IC-456323	5.00	5.00	100	0.00	R
47	IC-5356	5.00	5.00	100	0.00	R
48	IUBC-116-135	5.00	3.00	60.00	2.00	S
49	Jawahar Brinjal	5.00	5.00	100	0.00	R
50	JB-18	5.00	5.00	100	0.00	R
51	JB-6	5.00	5.00	100	0.00	R
52	JB-64	5.00	5.00	100	0.00	R
53	JB-69	5.00	5.00	100	0.00	R
54	JB-8	5.00	2.67	53.40	2.00	S
55	K-420590	5.00	5.00	100	0.00	R
56	Local Long	5.00	5.00	100	0.00	R
57	PR-5	5.00	5.00	100	0.00	R
58	Pusa Ankur	5.00	3.00	60.00	2.00	S
59	Pusa Purple Cluster	5.00	5.00	100	0.00	R
60	Pusa Purple Long	5.00	4.33	86.60	0.00	R
61	Pusa Upkar	5.00	2.67	53.40	2.00	S
62	S-101	5.00	5.00	100	0.00	R
63	S-102	5.00	5.00	100	0.00	R
64	S-103	5.00	5.00	100	0.00	R

65	S-104	5.00	5.00	100	0.00	R
66	S-108	5.00	5.00	100	0.00	R
67	S-109	5.00	5.00	100	0.00	R
68	SH-B-101	5.00	5.00	100	0.00	R
69	SH-B-103	5.00	5.00	100	0.00	R
70	SH-B-109	5.00	5.00	100	0.00	R
71	SH-B-110	5.00	5.00	100	0.00	R
72	SH-B-111	5.00	5.00	100	0.00	R
73	SH-B-118	5.00	5.00	100	0.00	R
74	SH-B-121	5.00	5.00	100	0.00	R
75	SH-B-123	5.00	5.00	100	0.00	R
76	SH-B-124	5.00	5.00	100	0.00	R
77	SH-B-130	5.00	5.00	100	0.00	R
78	SH-B-131	5.00	5.00	100	0.00	R
79	SH-B-142	5.00	5.00	100	0.00	R
80	SH-B-148	5.00	5.00	100	0.00	R
81	SH-B-149	5.00	5.00	100	0.00	R
82	SH-B-151	5.00	5.00	100	0.00	R
83	SH-B-161	5.00	5.00	100	0.00	R
84	SH-B-169	5.00	5.00	100	0.00	R
85	SH-B-170	5.00	5.00	100	0.00	R
86	SH-B-173	5.00	5.00	100	0.00	R
87	SH-B-191	5.00	5.00	100	0.00	R
88	SH-B-420	5.00	5.00	100	0.00	R
89	Utkal Keshari	5.00	5.00	100	0.00	R

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