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BACTERIAL WILT RESISTANCE IN A FEW SELECTED LINES AND HYBRIDS OF BRINJAL *(SOLANUM MELONGENA* L.)

One of the serious problems limiting brinjal cultivation is the occurrence of bacterial wilt caused by *Pseudomonas solanacearum* E.F. Smith. Gopfmony and George (1979) reported that percentage of wilt in improved varieties like Arka Kusumkar and Banaras Giant was as high as 100% whereas in local varieties, this varied from 6% to 20%.

SM 6, a brinjal line from Kerala Agricultural University showed considerable degree of tolerance to bacteria] wilt. Studies conducted at the Department of Olericulture, College of Horticulture, Kerala Agricultural Univessity indicated presence of transgressive segregants within SM 6 which were grouped into eleven distinct types. The lines were selected giving emphasis to bacterial wilt resistance. The eleven lines were evaluated for six generations and stability was tested for two seasons under two fertility levels. Among the eleven isogenic lines, SM 6-2 (purple, long, nonprickly), SM 6-6 (white, long, nonprickly) and SM 6-7 (purple, oval, nonprickly) were promising. But these lines were comparatively late to bear and of poor performance.

Heterosis breeding was conducted for the improvement of these three selected lines. The F1 lines evolved using these lines were SM 6-5 x Arka Kusumkar, SM 6-6 x SM 132, SM 6-2 x Pusa Purple Cluster, SM 6-2 x Pant Samrat, SM 6-7 x Arka Naveneeth and SM 6-7 x Pant Rituraj. Nine parental lines and hybrids were evaluated for resistance to bacterial wilt. Ooze test was done to confirm bacterial wilt incidence. Observations were recorded on number of wilted plants and genotypes were scored according to Mew and Ho (1976). Percentage of wilt incidence at 15, 30, 45 and 60 days after transplanting and the scores are presented in Table 1. Among parental lines, the lowest percentage of wilt incidence was observed in SM 132. SM 6-2, SM 6-6, SM 6-7 and Pusa Purple Cluster were resistant to bacterial wilt among parental lines. Among hybrids, the lowest percentage of wilt incidence was observed in SM 6-6 x SM 132 (5.26%). SM 6-2 x Pusa Purple Cluster was also resistant to bacterial wilt. SM 6-7 x Pant Rituraj and SM 6-7 x Arka Naveneeth were moderately resistant, M 6-2 x Pant Samrat was moderately susceptible and SM 6-6 x Arka Kusumkar was susceptible to wilt.

Present investigation was undertaken to evolve early, high yielding brinjal Fl hybrids resistant to bacterial wilt using three lines of brinjal namely SM 6-2, SM 6-6 and SM 6-7. Preference for fruit colour and shape are highly region specific. From the present study, it was observed that SM 6-6 x SM 132 among white long group and SM 6-2 x Pusa Purple Cluster among purple long group were early, high yielding and resistant to

Table 1. Fruit yield and bacterial wilt in parental lines and F_1 hybrids of brinjal

Lines/hybrids	Fruit yield (kg/plant)	Wilt incidence (%)					
		15 DAT	30 DAT	45 DAT	60 DAT	Total	Score
Lines							
SM 6-6	0.600	1.59	0.00	0.00	3.18	4.76	R
Arka Kusumkar	0.365	3.64	18.18	21.82	36.36	80.00	S
SM 132	0.270	0.00	0.00	0.00	0.00	0.00	R
Pant Rituraj	0.383	16.67	30.00	5.00	28.33	80.00	S
Arka Naveneeth	0.296	28.33	16.67	5.00	30.00	80.00	S
SM 6-7	0.536	1.64	4.92	3.28	6.56	16.39	R
SM 6-2	0.386	1.52	4.69	9.00	1.56	12.50	R
Pusa Purple Cluster	0.430	3.13	1.13	4.69	16.13	54.83	R
Pant Samrat	0.360	6.45	24.19	8.06	7.81	12.50	Ms
Hybrids							
SM 6-6 x Arka Kusumkar	0.420	18.18	9.09	1.86	34.55	63.83	S
SM 6-6 x SM 132	0.440	0.00	0.00	1.75	3.51	5.26	R
SM 6-7 x Pant Rituraj	0.413	8.06	8.06	8.06	16.13	40.32	MR
SM 6-7 x Arka Naveneeth	0.460	4.84	6.45	12.90	12.90	37.09	MR
SM 6-2 x Pusa Purple Cluster	0.440	3.13	1.56	0.00	7.81	12.50	R
SM 6-2 x Pant Samrat	0.493	12.50	7.81	15.63	43.75	Ms	

R = Resistant; MR = Moderately Resistant; Ms = Moderately susceptible; S = Susceptible; DAT = Days after transplanting

bacterial wilt. Only resistant x resistant crosses were useful and other combinations were susceptible to bacterial wilt.

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REFERENCES

Gopimony, R. and George, M.K. 1979. Screening brinjal varieties for wilt resistance *Agric. Res. J. Kerala* 17 : 7-10

Mow, T.W. and Ho, W.C. 1976. Varietal resistance to bacterial wilt in tomato. *Pl. Dis. Rep.* 60 : 264-268