

FIELD RESISTANCE OF BRINJAL TO BACTERIAL WILT

Bacterial wilt caused by *Pseudomonas solanacearum* E. F. Smith is a major disease of brinjal in Kerala. Yield losses upto 65% were reported by a few workers (Das and Chathopadhyay, 1955.) The present study was undertaken at the College of Horticulture, Trichur during June-October, 1985, October-April 1985-86 and May-August, 1987 to evaluate 26 lines of brinjal against bacterial wilt.

The materials comprised of 26 lines of brinjal, of which 25 were evolved by different methods of selection from a segregating population of SM 6, showing considerable degree of resistance to bacterial wilt (Kerala Agricultural University, 1981; Sheela *et al.* 1984). The methods of selection followed were mass, pure line, single plant and single seed descent. The selections were done in four succeeding cycles first during June-December, 1982, second during January-May, 1983, third during August-February, 1983-84 and fourth during March-September, 1984, based on fruit colour, shape and presence/absence of prickles (Ashasankar *et al.*, 1987). The 26th line was Pusa Purple Cluster, a check for the trial. The 26 lines were grown in a wilt sick field with 20 plants in each of the lines. The 20 plants were grown in two rows of ten plants each spaced at 75 cm x 60 cm. The experimental area enjoys a typical warm humid tropical climate and the soil is moderately acidic (pH 5.1). There was high incidence of bacterial wilt in this area when tomato, egg plant and chilli were grown. At the time of transplanting, a known suscept Pusa Purple Long was spot planted along with each plant. Spot planting involved transplanting of two seedlings at the same spot. One was the known suscept and the other, the line under evaluation. Wilting of the suscept and non-wilting of the line under evaluation are indicating resistance of the line. No data were recorded in cases where the suscept plant did not wilt. The line under evaluation might possibly be an escape. Observations were recorded on number of plants remained healthy where the known suscept (Pusa Purple Long) wilted. Incidence of bacterial wilt was confirmed through ooze test for each of the wilted plants. The lines were grouped immune (0% plants wilted- Score 1), highly resistant (1 to 10% plants wilted- Score 2), moderately resistant (11 to 50% plants wilted- Score 3), moderately susceptible (51 to 70% plants wilted- Score 4), and highly susceptible (75 to 100% plants wilted- Score 5 as per Sitaramaiah *et al.* (1981).

The lines SM 6-1 SP, SM 6-1 M and SM 6-7 SP were rated resistant (Score 2) (Table 1). All other lines were moderately resistant (Score 3). The line SM 6-7 SP was further tested under field conditions for reaction to wilt (Table 2).

Wilt incidence was observed more during October-April seasons. Incidence of wilt was confirmed through ooze test. The line SM 6-7 is now under multi-location trial for testing its performance and adaptability.

Table 1
Evaluation of brinjal lines for reaction to bacterial wilt

Lines	Total number of plants	Number of plants wilted	Disease reaction (%)	Score
SM 6-6 PL	20	3	15 (MR)	3
SM 6-6 SP	20	10	50 (MR)	3
SM 6-6 M	20	5	25 (MR)	3
SM 6-6 SSD	20	10	50 (MR)	3
SM 6-11 M	20	8	40 (MR)	3
SM 6-4 SP	20	9	45 (MR)	3
SM 6-4 M	20	8	40 (MR)	3
SM 6-4 PL	20	6	30 (MR)	3
SM 6-4 SSD	20	7	35 (MR)	3
SM 6-9 SP	20	10	50 (MR)	3
SM 6-3 PL	20	9	45 (MR)	3
SM 6-3 SP	20	9	45 (MR)	3
SM 6-3 SSD	20	8	40 (MR)	3
SM 6-8 PL	20	6	30 (MR)	3
SM 6-8 M	20	4	20 (MR)	3
SM 6-8 SSD	20	6	30 (MR)	3
SM 6-2 SP	20	6	30 (MR)	3
SM 6-2 M	20	8	40 (MR)	3
SM 6-1 PL	20	9	45 (MR)	3
SM 6-1 SP	20	1	5 (R)	2
SM 6-1 M	20	1	5 (R)	2
SM 6-7 PL	20	9	45 (MR)	3
SM 6-7 SP	20	2	10 (R)	2
SM 6-7 M	20	6	30 (MR)	3
SM 6-7 SSD	20	5	25 (MR)	3
PPC	20	8	40 (MR)	3

R Resistant
MR Moderately resistant

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References

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Table 2
Reaction of SM 6-7 to bacterial wilt under field conditions

Location	Season	Total plants	Planted/ wilted	% wilted
College of Horticulture				
Plot 1	June- Oct. 1985	2142	38	1.77
Plot 2	June- Oct. 1985	1750	13	0.74
Plot 3	June- Oct. 1985	467	4	0.85
Plot 4	June- Oct. 1985	520	4	0.76
College of Horticulture				
Plot 1	Oct.- April 1985-86	2850	543	19.10
Plot 2	Oct.- April 1985-86	1040	209	24.03
Plot 3	Oct.- April 1985-86	1870	269	14.70
College of Horticulture				
Plot 1	June- Oct.- 1986	275	0	0.00
Plot 2	June- Oct.- 1986	100	0	0.00
College of Horticulture				
Plot 1	June- Aug. 1987	2658	0	0.00
Instructional Farm, Mannuthy	June- Aug. 1987	2024	157	7.76