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Research Article

Studies on per cent incidence and reaction of tomato cultivars to bacterial wilt

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ABSTRACT

Thirty two F_1 hybrids developed as a result of line x tester design involving eight lines and four testers were evaluated in RCBD with three replications during 2005-2006 for per cent incidence and reaction of tomato cultivars to bacterial wilt.Two parents (T1,T2) and three crosses among hybrids were superior to commercial check.

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INTRODUCTION

Tomato is the world's largest grown vegetable crop known as protective food both because of its nutritive value and also because of its wide spread production. Tomato is rich source of minerals, vitamins and organic acid, essential amino acids and dietary fibres. The estimated area and production of tomato crop are about 3.50 lakh ha and 53 lakh tons (www.indiaagronet.com). Sucessful cultivation of tomato crop has been hindered due to numerous pests and devastating diseases.Chiefly of these, the Bacterial wilt caused by *Ralstonia solanacearum* (Yabuchii *et al.,* 1992) is difficult to control due to broad host range, wide spread distribution and vast genetic variability. Devloping commercially acceptable tomato varieties and hybrids with good horticultural qualities and tolerance to bacterial wilt has been the objective of many breeding programmes. In view of this a study was conducted at Department of Horticulture, University of Agricultural Sciences, Bangalore during 2005-2006.

MATERIALS AND METHODS

The experiment was carried out at the Department of Horticulture, University of Agricultural Sciences, Gandhi Krishi Vignana Kendra, Bangalore during 2005-2006. The experimental material consisted of F_1 population of 32 crosses, developed by crossing 8 lines and 4 testers. The F_1 population of 32 crosses were grown and assesed for per cent incidence and reaction of tomato cultivars to bacterial wilt along with Commercial check and their parents. Spacing was maintained at 50 cm between the plants and 100 cm between the rows and plants were provided with simple staking. The number of plants affected by bacterial wilt was recorded at 15 days after transplanting, 5 days before flowering,5 days after flowering, at fruiting and at harvest.

Scale:

0- No symptoms.
1- 1 to 2 lower leaves showing bronzing.
2- 2 to 3 leaves in a single branch drooping.
3-Partial wilting of 2-3 branches/plant.
4-All leaves drooping except the terminal leaves/ branches.
5-Complete wilting of plant

Disease scoring:

Wilt incidence (%)	Resistance level
0	Highly resistant
1-5	Resistant
5-20	Moderately resistant
21-51	Moderately susceptible
>51	Susceptible

RESULTS AND DISCUSSION

Entries were evaluated under natural epiphytotic