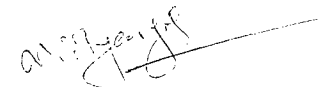


Abstract for Board of Management
CSK Himachal Pradesh Krishi Vishvavidyalaya
Department of Vegetable Science and Floriculture
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| 1. | Title of the thesis : | Genetic studies on bacterial wilt resistance and some horticultural traits in tomato |
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| 3. | Admission No.: | A-98-40-12 |
| 4. | Subject : | Vegetable Science |

Abstract

Tomato is one of the most important cash crops of Himachal Pradesh. Of late, its production has suffered a setback due to the prevalence of bacterial wilt disease. Information on the genetics of bacterial wilt and horticultural traits is essential in order to evolve resistant and horticulturally desirable genotypes. Hence, the present study was undertaken to ascertain the genetics of bacterial wilt resistance, gather information on gene action for some horticultural traits, study the extent of heterosis, identify the heterotic hybrids on mean performance and develop breeding material for selecting bacterial wilt resistant and horticulturally desirable progenies of tomato in segregating generations. The experimental materials comprised of three resistant (Hawaii 7998, BT-18 and EC191536) and two susceptible varieties (Roma and Solan Gola) and their F_1 , F_2 , B_1 and B_2 generations. The field experiments were carried out at the Vegetable Farm of CSKHPKV Palampur during summer-rainy season of 2000 and 2001. Studies on genetics of bacterial wilt resistance revealed that the resistance was dominant in nature and the degree varied from incomplete to complete dominance depending upon not only the resistant but also the susceptible parent. Single dominant gene was observed to govern bacterial wilt resistance in the resistant parents BT-18 and EC 191536 in combination with the susceptible parent Solan Gola. The presence of two genes with dominant and recessive epistasis was observed in the cross Hawaii 7998 x Roma. The presence of duplicate epistasis for the economic traits marketable yield and number of fruits per plant in the crosses Hawaii 7998 x BT-18 and BT-18 x EC 191536 with relatively higher magnitude of [I] interaction suggested the exploitation of hybrid vigour in these crosses and alternatively to go in for intermating followed by selection in later generations. For earliness both additive and non-additive gene effects were present. Studies on heterosis and mean performance revealed that the cross combination Hawaii 7998 x BT-18 was the most desirable for marketable yield and other component traits of economic importance. The breeding materials generated in this investigation have been retained to carry forward to later generations.



Major Advisor



Signature of student



Countersigned
Head of the Department



Dean
(Post Graduate Studies)