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Susceptibility Assessment and Genetic Diversity of Iranian and CIMMYT Wheat Genotypes to Common Root Rot Disease Bipolaris sorokiniana

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Abstract : Wheat, Triticum aestivum L. is one of the most important and strategic crops in the human diet. Several diseases threaten this particular crop. Common root rot disease of wheat by a fungal agent, Bipolaris sorokiniana is one of the important diseases, causing considerable losses worldwide. Resistant sources are the only feasible and effective method of control for managing diseases. In this study, the response of 33 domestic and exotic wheat genotypes, including cultivars and promising lines were screened to B. sorokiniana at greenhouse and field conditions, based on five scoring scale indexes of 0 to 100 severity percentage. The screening was continued on resistant wheat genotypes and repeated several times to confirm the greenhouse and field results. Statistical and cluster analysis of data was performed using SAS and SPSS software, respectively. The results showed that, the response of wheat genotypes to the disease in the greenhouse and field conditions was highly significant. The highest rate of common root rot disease infection, B. sorokiniana in the greenhouse and field, was of CVS. Karkheh and Beck Cross-Roshan with 60.83% and 59.16% disease severity respectively, and the lowest one were in cv. Alvand with 18.33%, followed by cv. Baharan with 19.16% disease severity, with a highly significant difference respectively. The remaining wheat genotypes were located in between these two highest and lowest infected groups to B. sorokiniana significantly. There was a high correlation coefficient between the related statistical groups and cluster analysis.

Keywords : wheat, rot, root, crown, fungus, genotype, resistance
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