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Characterization of Some Bread Wheat Genotypes for Drought Tolerance Using Molecular Markers

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Abstract : Drought is the most important factor that limiting the production and productivity of wheat in the world. The yield of wheat, which is one of the most important crop in the world, reduced depend on drought. Researches to minimize effects of drought are one of the most important about breeding of drought resistant varieties. In recent years, benefiting from the drought resistance wild species and rapid advances in molecular biology studies, researches about drought have been accelerated and number of studies were made on molecular plant breeding which included the molecular mechanisms related to drought resistance. The aim of the present study was characterization of some bread wheat lines for drought tolerance which commonly cultivated in different location of Turkey. In this study, registered 9 bread wheat varieties which on the physiological tests about drought tolerance and 10 bread wheat line has been developed by Transitional Zone Agricultural Research Institute were used. SSR, STS, RAPD and SNP markers that associated with drought tolerance were used. The polymorphisms of the markers were determined by screening of two control varieties. For these purpose 40 molecular markers were used and 12 markers of them were polymorphic among the drought tolerance and the drought sensitive varieties. Control varieties were screened using polymorphic markers. All the DNAs on the genotypes will be searched for the presence of QTLs mapped to different chromosomes. Result of the research, the studied genotypes will be grouped according to drought tolerance and will be detected drought tolerance varieties by molecular markers. In addition, the results will be compared also with physiological tests. The drought tolerant wheat genotypes may be used in breeding studies related to drought stress.

Keywords : bread wheat, drought, molecular marker, Triticum aestivum
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