عنوان مقاله:

Genetic Diversity of Synthetic Alfalfa Generations and Cultivars Using Tetrasomic Inherited Allozyme Markers

محل انتشار:

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خلاصه مقاله:

Enzyme electrophoresis was used to measure genetic variation within, and divergence among, three generations of recently bred synthetic alfalfa generations (Syn۱, Syn۲, and Syn۳) originating from a polycross of ۱۲ selected parents and several cultivars. Three isozyme loci, exhibiting tetrasomic inheritance in ۱۰-day seedlings, were detected from five enzymatic systems analyzed by polyacrylamide slab gel electrophoresis for about ۱۰۰ individuals of each alfalfa population. Very high levels of heterozygosity (ranging from ۰.۵۲۱ to ۰.۶۹۹) were observed within alfalfa populations, using polymorphic loci. The reduction in heterozygosity was about ۵% from Syn۱ to Syn۲ and from Syn۲ to Syn۳. The last open pollinated generation was found to be in W-H equilibrium as well as Gharayonja, a native ecotype under examination, using c۲-test. Application of Wright's Fstatistics revealed that the estimated overall inbreeding coefficient, (FIT), of ۹.۴% was mainly related to inbreeding or double reduction in alfalfa (FIS= ۸.۶۱%) rather than random genetic drift or population differentiation (FST= ۱.۶%). Therefore, due to very large intra-population diversity, the breeding program of the synthetic alfalfa did not generate a large variety differentiation. However, the use of seedling allozymic loci can be applied successfully for estimation of the population genetic parameters.

کلمات کلیدی:

Genetic diversity, Alfalfa, Allozymes, Tetrasomic inheritance