Genetic Diversity of Fir Populations: Black Sea Region Case

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Abstract:

Genetic diversity of four populations of Nordmann fir (Abies nordmanniana subsp. nordmanniana) and one population of Uludag fir (Abies nordmanniana subsp. bornmüelleriana) were estimated by use of ten nuclear microsatellite markers. Studied Nordmann fir populations were Şavşat-Yayla, Artvin-Veliköy, Koyulhisar-Sisorta and Torul-Örümcük. Additionally, Karabük-Keltepe population of Uludag fir was included for comparison. Sampling was done by collection of cones from 20 individuals from each population. Classical parameters of diversity (allelic richness and heterozygosity) and differentiation were estimated. Results of the microsatellite analyses revealed that observed heterozygosity (Hₒ) values were 0.47 for Uludag fir and changed between 0.38 to 0.48 for Nordmann fir populations. F-Statistics estimating the partitioning of genetic diversity revealed that 8% of genetic diversity is contained within populations and the 92% is between populations. High proportion of within population diversity also claims that studied species have high levels of genetic diversity. In addition, gene flow (Nₘ) between populations was estimated as 3.0. Koyulhisar-Sisorta population was separated from other Nordmann fir populations in Neighbor Joining tree.

Key Terms: Fir populations, Abies spp., genetic diversity, nuclear microsatellites.