Identification of Turkish and standard apple rootstocks by morphological and molecular markers

A. Koc[1], M. Akbulut[1], E. Orhan[3], Z. Celik[2], S. Bilgener[2] and S. Ercisli[3]

[1]Black Sea Agricultural Research Institute, Gelemen-Samsun, Turkey
[2]Department of Horticulture, Faculty of Agriculture,
Ondokuz Mayis University, Samsun, Turkey
[3]Department of Horticulture, Faculty of Agriculture,
Ataturk University, Erzurum, Turkey

Corresponding author: S. Ercisli
E-mail: sercisli@hotmail.com

ABSTRACT. Two local (Vezir-1 and Vezir-2) and two standard (M9 and MM106) clonal apple rootstocks were compared using both morphological and molecular markers. International Union for the Protection of New Varieties of Plants criteria were used for morphological evaluation, which did not clearly separate these rootstocks. We tested 47 random decamer primers for random amplified polymorphic DNA analysis; 15 of them gave reproducible polymorphic patterns, yielding 109 bands, which showed 78% polymorphism. Based on a dendrogram obtained by unweighted pair group method using arithmetic average analysis, three clusters were obtained. The highest genetic similarities were found between M9 and Vezir-2 (0.670). The random amplified polymorphic DNA markers proved to be more efficient than the standard morphological markers for the identification of rootstocks.

Key words: *Malus*; Genetic diversity; UPOV; Rootstocks; Turkey; Random amplified polymorphic DNA