

## Determination of the genetic relationships between wild olive (*Olea europaea oleaster*) varieties grown in the Aegean region

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**ABSTRACT.** The RAPD technique was used for determining genetic differences between 12 wild-olive varieties grown in the Aegean provinces of Izmir, Mugla, and Manisa in Turkey. Wild olives obtained from the same provinces were included in the same plot. Twenty of 25 operon primers (OP-I 4, OP-I 14, OP-I 15, OP-I 16, OP-I 17, OP-Q1, OP-Q2, OP-Q3, OP-Q4, OP-Q11, OP-Q12, OP-Q13, OP-Q14, OP-Q15, OP-Q16, OP-Q17, OP-Q18, OP-Q19, OP-Q20, OP-F1, OP-F2, OP-F3, OP-F6, OP-F7, OP-F8) yielded bands. The differences between the varieties were determined based on their genetic similarities, using principal coordinate analysis; genetic distances were determined using neighbor-joining analysis. The varieties wild 7 and wild 12 had the lowest genetic similarity (0.97, Jaccard similarity index); they also had the greatest genetic distance between them (0.3606, Nei's genetic distance). It was concluded that the RAPD technique is adequate for the evaluation of genetic relationships among wild olives. Principal coordinate analysis and neighbor-joining analysis gave results that support the

use of this type of analysis to help understand the genetic background of olives and for further genetic studies.

**Key words:** *Olea europaea oleaster*; RAPD; Neighbor-joining method; Principal coordinate analysis