



Molecular identification of Greek olive (*Olea europaea*) cultivars based on microsatellite loci

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ABSTRACT. *Olea europaea* is one of the oldest species of domesticated trees. We used microsatellite markers for fingerprinting and for evaluation of genetic similarity and structure of 26 Greek olive cultivars, which cover most of the olive cultivation regions of Greece, including previously undescribed denominations from northern Greece. Eighty-one alleles were revealed with six SSR loci that were selected as most informative of 10 SSR primers that were initially investigated. The number of alleles per locus varied from 7 to 20 (mean, 13.5). Heterozygosity ranged from 0.240 at locus DCA-3 to 0.826 at locus UDO99-9, with a mean value of 0.600. Analysis of 104 trees representing 26 denominations (four trees per denomination) revealed 26 distinct SSR profiles, indicating 26 olive cultivars; no intracultivar variability was observed. Genetic and geographic distances were not significantly correlated, based on the Mantel test. These SSR loci

allowed unequivocal identification of all the cultivars and will be useful for future breeding and olive germplasm management efforts.

Key words: *Olea europaea*; Molecular markers; SSR; DNA fingerprinting