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Poster Abstract – B.13

MICROSATELLITE AND AFLP MARKERS TO IDENTIFY ITALIAN AND GREEK VIRGIN OLIVE OILS FROM SINGLE CULTIVARS

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Up to now, various categories of DNA-based markers have been employed in *Olea europaea* L. with cultivar identification purposes but in few cases they have been used to analyse the olive oils. Microsatellites were found to be able to effectively amplify the degraded DNA extracted from oils (Pasqualone et al., 2004, 2005). AFLP markers are characterised by a high efficiency and informativeness as well as by good reproducibility, and they show a higher number of polymorphic bands per amplification with respect to microsatellites. They have been already used with cultivar identification purposes in *O. europaea* L., but using DNA extracted from leaves. The aim of this work was to compare the effectiveness of microsatellite and AFLP markers to identify Italian and Greek virgin olive oils from single cultivars.

Olive oils obtained from 10 single cultivars native to Italy (*Cellina di Nardò, Leccino, Pendolino, Ogliarola barese, Toscanina, Frantoio, Cima di Melfi, Picholine, Coratina* and *Nocellara del Belice*) and 6 from Greece (*Throboulia, Kalamon, Koroneiki, Mastoidis, Adramytini* and *Valanolia*) were analysed by means of microsatellite and AFLP markers. Eight microsatellite primer pairs taken from literature (Sefc *et al.*, 2000; Carriero *et al.*, 2002; Cipriani *et al.*, 2002) and six AFLP primer combinations were used. After oil centrifugation and DNA extraction from the remaining cell residues, the amplification reactions were carried out. The obtained results showed reproducible electrophoretic patterns in case of the use of microsatellite primers while in case of AFLP some lack of reproducibility were encountered in the upper part of the gels contaning the higher molecular weight bands. This was probably due to the high degradation level of starting DNA, since the olive oil processing technology involves strong mechanical stresses. Considering the zone of the AFLP gels lower than 800 bp, a good reproducibility was observed. On that basis, the mean polymorphism of AFLP markers was 38 polymorphic bands/total bands %. Regarding microsatellites, ten primer pairs (already selected during previous researches as being highly polymorphic, Montemurro *et al.*, 2005) lead to a total number of polymorphic band of 20. This remarked the usefulness of AFLP even thought the gels obtained by means of this markers have to be carefully read exclusively in their lower zone.