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MOLECULAR TRACEABILITY OF OGLIAROLA SALENTINA CULTIVAR OLIVE OIL

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In the agro-food industry there's a rapidly development of the new requirements to satisfy for quality controls. Among instruments utilised for quality control, Protected Designation of Origin (PDO), Protected Geographical Indication (PGI) and Traditional Specialty Guaranteed (TSG), recognized by European Council Regulation EEC/2081/1992, are very effective since the origin and the typicality of a food product warrant product healthiness and safety. Moreover it establishes for every designation the per cent contribution of cultivar to use in each PDO oil. So, it is necessary the devolopment of a procedure to identify cultivars in olive oil in order to prove that cultivar composition and proportion are observed.

Since sometimes chemical analyses of many compounds don't allow cultivar identification molecular techniques, based on polymerase chain reaction (PCR), seems to be a promising method.

Even if DNA extracted from oil is highly degraded, rich in PCR inhibitors and shows a low yield, the use of microsatellite markers could overcome these obstacles since it is possible to achieve short fragments amplification like microsatellite *loci* (100-300 bp). Besides, the availability in literature of SSR loci isolated from *Olea europaea* L. makes possible the use of these markers without the expensive development of new ones, with lower costs and comparatively shorter times.

The aim of this study is to develop a protocol for DNA extraction from oil and check if microsatellite loci can be successful amplified in order to evaluate the possibility of identifying monovariety oil comparing SSR alleles present in olive oil with alleles obtained from leaf DNA of the reference cultivar. The study was performed on Ogliarola salentina cultivar analysing olive oil samples filtered and non filtered and oil samples obtained from drupes with and without stones in order to evaluate possible differences due to the seed genomic contribution.

The DNA, although degraded and in trace quantity, appeared amplifiable when used as template for microsatellite loci making possible the use of this DNA to trace raw material in fingerprinting the cultivar used for oil production. Acceptable amplification levels were obtained for oil DNA for six *loci* which can be amplified also in presence of highly degraded DNA and provided identical fingerprinting for oil DNA and leaves and drupes DNA.

As concerns future prospects, the use of microsatellite markers can be suitable for the identification of the raw material used for oil production.