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DNA-Based Technologies for the Authentication of Olive Oil

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Abstract

The aim of this work is to generate a single nucleotide polymorphism database on Olea europea varieties, in order to detect the varietal contribution present on olive oils on a both qualitative and quantitative level.

The first objective would be to screen DNA sequences of several gene targets among many oil producing varieties for SNPs that can be used in the future for the varietal characterisation of commercial olive oils. The second objective would be to develop an SNP-based approach and test its analytical characteristics, such as reproducibility, limit of detection and limit of quantification on previously known olive oil samples. Other issues such as the influence of storage period on the quality of extracted DNA shall also be investigated.

The development of molecular markers in olive tree varieties by means of SNPs and the understanding of the mechanism under which they contribute to several phenotypic traits such as antioxidants production, resistance to biotic or abiotic stresses, oil quantity and quality shall be beneficial to all European scientistsfocused on that species. In particular, it shall promote olive breeding and selection schemes under a common European strategy. Therefore, National agricultural or oil institutes shall take advantage of such knowledge for the benefit of European countries. Varietal discrimination of olives through SNPs shall be useful to the European Food Agencies that shall be likely involved with aspects such as Food authenticity and traceability and especially in P.D.O. issues of olive oils.