

Characterization of Phenolic and Volatile Compounds of Sicilian Virgin Olive Oils Produced from Native Cultivars

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In Europe, the quality and the typicality of the Italian traditional productions are guaranteed by community regulations that certificate the food product on the basis of documental procedures, according to the approved U.E. production disciplinary. For characterizing and subsequently certifying the origin and typicality of the food product by instrumental methods, analytical markers and relative defined methodologies, according to the specific food, are required. This aspect is very interesting for the Italian olive productions since of a very important discriminating element is the cultivar platform of the several country productive areas. In particular, several geographic zones, Sicily including, are characterized by differentiated olive platforms because of historical and productive traditions of the original territory. At this regard we analyzed monovarietal Sicilian VOOs from olives of *Nocellara del Belice*, *Biancolilla* and *Cerasuola* Cvs. We characterized their typicality through the evaluation of the minor compounds such as the phenolic and the volatile substances. The results obtained show that the phenolic composition, was very different according to the Cv., in terms of absolute values and single fractions too. Furthermore the quantity of the oleuropein and ligstroside derivatives (3,4-DHPEA-EDA, 3,4-DHPEA-EA e p-HPEA-EDA) that are the most responsible of the salutistic and sensory properties of the VOO, could be increased, optimizing some agronomic and technological parameters of VOO production. The analysis of the volatile compounds by HS-SPME-GC/MS, show that their aromatic notes of these VOOs were extremely complex and very rich in saturated and unsaturated C₆ and C₅ compounds like hexanal, (E)-2-hexenal and the relative alcohols and esters, which are the most important substances for the “green”, and “floral” aromas, typical of these Sicilian VOOs, as well as the 6-methyl-5-epiten-2-one that seems to be one of the impact compounds for the “tomato” flavour. In the head space of the VOOs analysed, its concentration was higher than that of other monovarietal Italian VOOs.