

Variation of the antioxidant compounds in Italian olive (*Olea europaea*) drupes during ripening stage

I. Muzzalupo, F. Stefanizzi, E. Perri, A. Chiappetta

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Abstract

The fruits of the olive tree (*Olea europaea* L.), a plant that is typical of countries of the Mediterranean basin, for centuries, have been used for direct consumption and for oil extraction. For table olive consumption, the fruits must first be treated by means of technologies that provide forms of debittering. All of these technologies are based on delicate fermentations during which microbial transformation of sugars to secondary metabolites. These metabolites that are achieved give the finished product a progressive acidification and a particular taste and flavour. Virgin olive oil is overwhelmingly composed of triglycerides (>98%), along with traces of other compounds. The dominant triglyceride fatty acid species are the oleic acids (57-78%), palmitic, stearic, linoleic and linolenic. The other minor constituents (alcohols, polyphenols, chlorophyll, carotenoids, sterols, tocopherols and flavonoids) contribute to the olive's organoleptic qualities, taste, flavour, and nutritional value. These compounds may also serve to distinguish olive oils originating from different regions. Tocopherols and phenol compounds are essential components of animal and human diet, being synthesized exclusively by photosynthetic organisms. For these reasons, it is essential to estimate these compounds in a determined food and thus, understand their possible antioxidant and other biological activities. The results obtained with olive drupes from two different stages of maturation and from different Italian olive cultivars are discussed.