

Presence of Free and Esterified Steryl Glucosides in Olive Oil

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Sterols belong to one of the most characteristic groups of compounds of olive oil. They are considered to be minor constituents and are partly responsible for the chemical authenticity of the oil. Besides, they contribute to its oxidative and thermal stability, and therefore to its shelf-life.

In the case of olive oil, the sterol determination is well and tightly regulated. However there are not official analysis to differentiate between non-conjugated sterols and glucosidic phytosterols. Some of the existing procedures for phytosterol quantitation in edible matrices have underestimated the amount of sterols in samples by overlooking the presence of steryl glucosides. In other cases they have failed to its specific determination either because they focused on non-glucosidic plant sterols or because they used enrichment procedures where early hydrolysis (alkaline, acid or a combination of both of them) took place.

With the aim of studying olive oil chemical composition we have concentrated on the detection and quantification of steryl glucosides in both free (SG) and esterified (ESG) forms. To this purpose we have developed a procedure to analyse systematically the afore-mentioned sterol conjugates. The method was applied to a number of samples of olive oil of different origins. The influence of the olive fruit variety, of the different refining processes, and of the oil quality on the (E)SG profile is discussed. Possible adulterations with seed oils and their relationship with this new characterization parameter are also considered.