

Pyropheophytines, Diacylglycerols, Alkyl Esters in Olive Oils which are the Meanings of?

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The assessment of the presence of deodorised oil in virgin olive oils had been an “hot topic” of olive oil analytical chemistry since a couple of years.

A number of different approaches were applied, but in many cases they failed because of the presence of “false positive” results.

Serani at first proposed the evaluation of molecules originated by pigment degradation that could take place because of heat conditions that were believed to be applied in this kind of deodorisation, the same researcher also proposed to check for the isomerisation of diacylglycerols as usually a soft neutralisation was applied, too. Later, Gertz tried to improve the Serani’s method, by changing some aspects of the methods.

Some olive oil chemists, however, considered that pigments can undergo to degradation not only when heat treatment are applied, but also as depending on age, mainly if light can act on the oil. Diacylglycerols isomerisation, as well, can depend on age, furthermore, as these latter are already present in oil, their concentration somewhat can depend on the composition of oils used to produce mixtures. Cert in 2005 proposed the evaluation of alkyl esters as a powerful mean of detection of deodorised oils.

In this poster, we determined the concentration of pyropheophytines, diacylglycerols and alkyl esters in authentic virgin olive oils samples, fresh extracted and one year aged and in samples that we considered as deodorised as they presented a chemical composition in agreement with being extra virgin olive oil, but not flavour at all. Some mixtures between these oils and extra virgin oils were produced in laboratory and the same analytical determination were carried out.

Results proved that alkyl esters were more reliable as a mean of detection of deodorised oils, as when deodorised oil was mixed to a fresh extracted oil, both pyropheophytines and diacylglycerols underwent to a dilution and their value drops to not significant levels.

Alkyl esters seemed to be more reliable and sensitivity approach, we also make some consideration about the possibility of fixing a limit for these compounds.