

DETERMINATION OF WAXES AND FATTY ACID METHYL AND ETHYL ESTERS CONTENT IN OLIVE OIL BY SOLID PHASE EXTRACTION AND GAS CHROMATOGRAPHY

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ABSTRACT

A fast and reliable method was developed for the determination of the wax content, as well as the fatty acid methyl esters (FAMES) and fatty acid ethyl esters (FAEEs) content in olive oil, by solid phase extraction (SPE) and gas chromatography, with flame ionization detector (GC-FID). The method was based on the method of EU Regulation 61/2011, but instead of the time and materials consuming glass column chromatography, SPE with 10g Silica cartridges and a vacuum manifold was used. The method was assessed by analyzing certified reference olive oil sample (CRM) that was supplied by the International Olive Oil Council. The CRM was analyzed for both the C40+C42+C44+C46 wax content and the FAEEs content, with both the developed SPE method and the method of EU Regulation 61/2011. Five replicates were analyzed by each method and the mean values were compared. The comparison showed that for both the wax and the FAEEs content: a) the results of both methods were within the accepted range of the CRM and b) there was no significant difference between the results of the two methods. Thus, the wax content of the CRM was found 112mg/kg with the EU method and 122mg/kg with the SPE method, both within the accepted range and the difference of the mean values less than 10%.

KEYWORDS: Gas Chromatography, Solid phase extraction, Olive Oil

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