

Quality Assessment of Extra Virgin Olive Oil by FT-NIR

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The increase in demand for olive oil commands a high price on the market, and authentication of purity is therefore desirable. Various analytical techniques form the backbone of EEC legislation on the characteristics of extra vergine olive oil. It is however, easy to adulterate olive with low-grade olive oils or foreign oils such that physical and chemical properties still fall within the limits of the European standard of olive oils. Sensory analysis alone may need to be repeated if faults are detected. All these tests are very time consuming and expensive. Quick objective chemical indices that correlate with sensory characteristics are needed to help to properly qualify and authenticate the world's olive oils.

More than 300 samples of extra virgin olive oils from different countries, at different level age and qualities were checked by an officially assigned sensory panel. Simultaneously analytical parameters relevant for the quality such as fatty acid composition, anisidine value, free fatty acid content, K-Values pyropheophytine and diacylglycerol ratio have been determined by transmittance NIR.

High calibration accuracy was obtained for the NIR determination of all these analytical parameters. From these results, it is concluded that it is possible to design a quality control system, which uses near-infrared technology