

P28: EXTRA VIRGIN OLIVE OIL QUALITY ASSESSMENT BY ATR-FTIR SPECTROSCOPY

Volpe M.G.¹, Siano F.¹, Vasca E.², Medugno A.², La Cara F.³

¹Istituto di Scienze dell'Alimentazione, CNR - Via Roma 64, Avellino (Italy)-

mgvolpe@isa.cnr.it, francesco.siano@isa.cnr.it

²Dipartimento di Chimica e Biologia "A. Zambelli" - Università degli Studi di Salerno, Via G. Paolo II 132, Fisciano (SA)-

evasca@unisa.it, amedugno1990@gmail.com

³Istituto di Biologia Agroambientale e Forestale, CNR – Via P. Castellino 111, Napoli (Italy)-

francesco.lacara@ibaf.cnr.it

One of the most important parameter for the quality determination of extra virgin olive oils, as established by the European Community legislation, is the percentage of free fatty acids. The olive oils classification is governed by the Commission Delegated Regulation (EU) N° 2015/1830 amending the EEC Regulation N° 2568/91 concerning the characteristics of olive oil and olive-pomace oils and the related methods. The regulation fix a total acidity value, for the extra virgin olive oils, $\leq 0.8\%$ of total acidity expressed as oleic acid percentage. Several analytical methodologies have been described for the evaluation of fatty acids contents. These methods, however, need of a time-consuming samples preparation, use of solvents and reagents. Here we present preliminary data on the use of Fourier transform infrared (FTIR) spectroscopy in ATR modality to analyze the free fatty acids content in samples belong to different olive cultivars. The results demonstrated that, the use of ATR-FTIR spectroscopy allowed a determination of fatty acids content faster and affordable in comparison to conventional chemical analyses. Statistical analyses on FTIR spectra allowed the comparison of different samples. The statistical value are been plotted using a Assured ID software that provide overall comparison of the different type of olive oils collected from several geographical locations. The differences are due to factors such as types of soil, water availability, pH, weather, etc. These factors can influence the distance and the percentage of rejection of SIMCA created by three principle components. SIMCA method analysis was performed using the software Assure I.D Perkin Elmer version 3.0.0132.