

New Operating Conditions to Increase Quality and Sustainability of Olive Oil Production Chain

Marzia Migliorini¹, Chiara Cherubini¹, Lorenzo Cecchi¹, Giacomo Gianni¹, Serena Trapani² and Bruno Zanoni^{2,1} Metropoli -Azienda Speciale della Camera di Commercio di Firenze, Italy² Dipartimento di Biotecnologie Agrarie, Università di Firenze, Italy.

The quality of extra virgin olive oil can be evaluated not only by estimating its product parameters, which are determined by current applicable regulations, but also by assessing its phenolic and aromatic compound content. The quality and types of phenolic and aromatic compounds contained in extra virgin olive oil is dependent upon both chemical composition of processed olives and operating conditions for processing in olive oil mill. The quality of extra virgin olive oil is determined by a series of chemical and enzymatic changes, which occur during the extraction process (Di Giovacchino *et al.*, 2002). Literature studies have shown that olive oil quality can be improved by controlling and addressing the phenomena of oil synthesis and transformation throughout the oil production chain (Migliorini *et al.*, 2009). The aim of this work was to install an innovative extraction system, based on the concept of reduced-oxidative-stress, in a Tuscan farm. In addition, some new technologies were designed to use by-products obtained from extraction. Oil samples obtained were compared with average oil products from the same crop season in Florence (Italy) for chemical parameters of quality indicators (i.e. phenolic and aromatic compound, acidity, peroxide value). Implementation of this work was made possible thanks to the *Oleosalusistem* project supported by Tuscany Region funds.

References Migliorini M, Cherubini C, Zanoni B, Mugelli M, Cini E, and Berti A. Influence of operative conditions of malaxation on the quality of virgin olive oil. *Riv Ital Sost Gr* **86**: 92-102 (2009). Di Giovacchino L, Sestili S and Di Vincenzo D, Influence of olive processing on virgin olive oil quality. *Eur Jnl Lip Sci Technol* **104**:587-601 (2002).