Valorization of minor olive cultivars and olive oil from different Italian regions:

a physicochemical and thermal approach

Maria Paciulli[1], Francesco Caponio[2], Carla Di Mattia[3], Antonio Piga[4], Vito Michele Paradiso[2], Federica Flamminii[3], Paola Pittia[3], Emma Chiavaro[1]

[1] *Dipartimento Scienze degli Alimenti e del Farmaco (University of Parma, IT)*
[2] *Dipartimento di Scienze del Suolo, della Pianta e degli Alimenti (University of Bari Aldo Moro, IT)*
[3] *Facoltà di Bioscienze e Tecnologie Agro-Alimentari e Ambientali (University of Teramo, IT)*
[4] *Dipartimento di Agraria (University of Sassari, IT)*

Abstract

The project Sustainability of the Olive-oil System – S.O.S., founded by the Ager foundation (AGER 2 Project, grant n° 2016-0105), presents a multidisciplinary approach, aimed to produce transferable contributes for the improvement of quality and quantity of the Italian extra virgin olive oil, and to support its promotion through cultural outcomes.
One of the planned activities was the biological, chemical, physical and thermal characterization of minor olive cultivars and related extra virgin olive oils, coming from three different Italian regions where the project partner Universities were located. Eight minor cultivars were analyzed: two from Apulia (Oliva Rossa and Cima di Melfi), three from Sardinia (Corsicana da Olio, Semidana and Sivigliana) and three from Abruzzo (Dritta, Tortiglione and Gentile de L'Aquila). From each of the selected cultivar the drupes were harvested at three different ripening times, at intervals of 15 days, starting about one month before the traditional harvest time, and submitted to the determination of water content, oil percentage, phenol content, total soluble solids content (sugars) and antioxidant activity. To characterize the cultivars, the oil yield and quality were also assessed in terms of fatty acid composition, volatile profile, chlorophylls, oxidative and hydrolytic degradation other than antioxidant content. For each of the oils, at any harvest time, a physical and thermal characterization was also performed: viscosity and color, other than the measurement of the phase transitions upon cooling and heating, and the heat capacity by means of differential scanning calorimetry were assessed. Several differences were evidenced between varieties and harvesting time of olives and oils, with good correlations between the chemical, physical and thermal measurements, suggesting the robustness and the effectiveness of the investigation method. The experimentation will be conducted over the three years project, opening a good way for the characterization, recover and valorization of the minor olive cultivars, botanical heritage of the Italian regions.

Keywords— *Italian Olive Oil, Minor Cultivars, Physicochemical Properties, Differential Scanning Calorimetry*

Professional Biography

MSc and Ph.D in Food Science and Technology at the University of Parma, currently post-doc in the Department of Food and Drug of the same University, in the area of Food Technology. Her research activity primarily focused on the investigation of the effect of processing and formulation on the physico-chemical and thermal properties and stability of food products, with a particular focus on oil and fats, bakery products and vegetables. She is author of 24 papers in reputed journals and 3 book chapters, with participation to several national or international conferences.



Email Id: maria.paciulli@unipr.it

Any Comments: