

Olive oil and Cretan - Mediterranean diet: The importance of olive oil constituents, and mainly polyphenols, in human health - The Redox system.

Authors: [Apostolos Kiritsakis](#)¹, [Evgenia Athanasiadou](#)², [Turkan Mutlu Keceli](#)³, [Evaggelos Evaggelou](#)⁴, [Charalampos Anousakis](#)⁵ and [Luigi Eugenio Iorio](#)⁶

Affiliation: ¹International Hellenic University, Thessaloniki, Greece, ²International Observatory of Oxidative stress in Health and Agrifood, Thessaloniki, Greece; ³Aristotle University of Thessaloniki, Greece; ⁴The University of Cukurova, Department of Food Engineering Balcali-Adana, Türkiye; ⁵Plant Science Agroecology, Wageningen University, the Netherland; ⁶Agricultural Cooperative Union of Olive Oil, Platanos, Crete, Greece;

⁶International Observatory of Oxidative stress, Salerno, Italy

kyritsak@gmail.com

The Mediterranean diet, a term that was coined by Ancel Keys back in 1960, is one of the most studied and well-known dietary patterns worldwide. Descriptions of the traditional MedDiet have reflected food patterns typical of Crete, a part of the rest of Greece, and southern Italy in the early 1960s. Variations of the MedDiet exist but have been less well described in other parts of Italy, France, Lebanon, Morocco, Portugal, Spain, Tunisia, Turkey, and elsewhere in the Mediterranean region. MedDiet is characterized by a high intake of olive oil (especially virgin and extra virgin olive oil) used as the principal source of fat. The significance of macro- and micro-components of extra virgin olive oil, such as the oleic monounsaturated fatty acids (MUFAs) and the phenolic compounds, will be discussed. Mechanisms of phenolic compounds preventing oxidation, extending shelf life, imparting bitterness and astringency, and stimulating the sensory properties of extra virgin olive oil will be explained. The preventive aspects of phenolic compounds against various chronic diseases, including coronary heart disease, cancer, and diabetes, are highlighted. There will also be a reference to the bioavailability and bioaccessibility of these biofunctional compounds, exploring their modulating effects on oxidative stress, telomere length, and successful aging through redox function and epigenetic modulation capacities. The adoption of healthy and sustainable diets and the transition to sustainable food systems are of principal importance in order to counteract the double burden of climate change and noncommunicable diseases. The Mediterranean diet (MD), widely recognized as a healthy diet, is also considered a resource with higher diversity in food plants and is sustainable with reduced land use, water use, eutrophication potential, and greenhouse gas emissions.

Keywords: Olive oil; bioactive compounds.

References

- [1] C. Apaydin Kaya, G. Temiz (2021). The Turkish version of the Mediterranean diet quality index, *TJFMPC*, **15**, (2),341-347.
- [2] W. Belgacem, K. Mattas, G. Arampatzis and G. Baourakis (2021). Changing dietary behavior for better biodiversity preservation: a preliminary study, *Nutrients*, **13**, (6), doi:10.3390/nu13062076
- [3] E. L. Iorio (2018) The REDOX TAO and the oxidative di-stress syndrome original title: “Il TAO redox e la sindrome da di-stress ossidativo”], Edra Eds Milan, Italy.
- [4] A. Kiritsakis, T.M. Keceli and K. Kiritsakis (2020). Olive Oil, in: Shahidi Freeidon (ed.), *Bailey’s Industrial oil and fat products*, John Wiley & Sons, Ltd, pp. 1–38
- [5] A. Kiritsakis, E. L. Iorio, G. Scapagnini, Ch. Anousakis, K. Kiritsakis, and D. Gerassopoulos (2020). The relationship among olive oil polyphenols/telomeres/aging, AOCs 12th Olive Oil Expert Panel (Virtual) Meeting, June 17th, Urbana Illinois, USA.
- [6] A. Kiritsakis, T.M. Keceli, Ch. Anousakis, I E. L. Iorio, Ch. Tsitsipas and F. Shahidi (In press, 2024). Olive oil and Mediterranean diet: The importance of olive oil constituents, and mainly of its polyphenols, in human health - The Redox system. Xenohormesis hypothesis:In "Neurological Disorders: Molecular Mechanisms, Therapeutics and Prevention" Book , Editor Baagchi , B. for Elsevier/Academic Press.
- [7] K. Mattas, E. Raptou, A. Alayidi, G. Yener and G. Baourakis (2023). Assessing the interlinkage between biodiversity and diet through the Mediterranean diet case, *Adv. Nutr.* **14**, 570-582.

The meeting abstract was published by ACG Publications

<https://www.acgpubs.org/journal/records-of-agricultural-and-food-chemistry> EISSN:2792-0763

DOI: <http://doi.org/10.25135/rfac.2024.3rd.3072>

TCS, 3rd. International Food Chemistry Congress February 29 –March 03,2024 Antalya Türkiye

© 2024 ACG Publications. All rights reserved.

