

Olive Oils from Corfu Island (Greece): Content and Antimicrobial Activity of Health-Protective Compounds and Antioxidant Activity of the Oils

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Abstract

Health-promoting properties of olive oil are partially attributed to their phenolic compounds. Olive oils produced from native cultivars of the island Corfu were studied to a) determine content in six phenolic compounds with health-protecting potential, b) probe antioxidant activity and its correlation with the phenolics and c) examine antimicrobial activity (AA) of oil and of each specific phenolic. Olive oil was produced under the same conditions from olives collected early in the harvest period. Determination of six phenolic compounds [oleocanthal (A), oleacein (B), ligstroside aglycone (C), oleokoronal (D), oleuropein aglycone (E), oleomissional (F)] was done via ¹H-NMR. Antioxidant activity was determined spectrophotometrically by measuring the decrease of the DPPH absorbance. The AA of an olive oil sample as well as of compounds A, B, C, E, and F was tested on *Listeria monocytogenes* ATCC 15313, 7644 and 1911, *Bacillus cereus* ATCC 14579 and 10876 and *Staphylococcus aureus* ATCC 25923 via the disc assay with erythromycin as a positive reference standard. The highest AA was exhibited by the olive oil sample. All individual compounds, except C, were found to have antimicrobial activity with A and B being the most potent. Determination of phenolic content and antioxidant activity was done on samples from two cultivars: “Lianolia” (“L”) and “Koroneiki” (“K”). Olive oil from Corfu island and specific isolated phenolic compounds were shown to possess antimicrobial activity. The oils exhibited antioxidant activities which were correlated with their phenolic content. The authors acknowledge support from the Operational Programme “Ionian Islands 2014-2020” (Project: MIS 5005497)

conducted postdoctoral research at the University of Tennessee, Department of Microbiology, and the Pasteur Institute of Athens, Greece. She is currently an Associate Professor in the Department of Food Science and Technology at Ionian University in Kefalonia, Greece. Her current research focuses on Food Microbiology.



Speaker Publications:

1. Eriotou, Effimia & Kopsahelis, Nikolaos & Lappa, Iliada & Alimpoumpa, Dimitra & Diamanti, Vasiliki & Koulougliotis, Dionysios. (2020). Identification of Indigenous Yeast Strains from Spontaneous Vinification of Grapes from the Red Variety Avgoustiatis Zakynthou (Ionian Islands, Greece) and Antioxidant Activity of the Produced Wine Open Access. Journal of Food Chemistry & Nanotechnology. 6. 10.17756/jfcn.2020-083.

8th World Congress and Expo on Applied Microbiology; Webinar- September 28-29, 2020.

Abstract Citation:

Effimia Eriotou, Olive Oils from Corfu Island (Greece): Content and Antimicrobial Activity of Health-Protective Compounds and Antioxidant Activity of the Oils, Applied Microbiology 2020, 8th World Congress and Expo on Applied Microbiology; Webinar-September 28-29, 2020.

(<https://microbiology.conferenceseries.com/speaker/2020/effimia-eriotou-ionian-university-department-of-food-science-and-technology-greece>)



Biography:

Dr. Effimia Eriotou graduated from the Biology Department of the University of Patras, Greece and earned her M.Sc. and Ph.D degrees in Food Technology and Science and Microbiology at the University of Tennessee at Knoxville, USA. She has