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MEETING ABSTRACT OP

Maturation-driven modulation of phenolic compounds and antioxidant properties in Chemlali olives and oil

Boutheina Gargouri[1*] and Mohamed Bouaziz[1,2]

[1]Laboratory of Electrochemistry and Environment, National School of Engineers of Sfax (ENIS), University of Sfax, BP 1175, 3038 Sfax, Tunisia
[2]Institut Supérieur de Biotechnologie de Sfax, Université de Sfax, BP1175, 3038 Sfax, Tunisia

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Abstract: For the first time, a comprehensive identification and quantification of phenolic compounds in *Olea europaea* L. cv. Chemlali olives were performed in order to investigate the evolution of their phenolic profile throughout fruit maturation. The phenolic composition was monitored at different developmental stages using reverse-phase high-performance liquid chromatography (RP-HPLC). Oleuropein was identified as the predominant phenolic compound in Chemlali olives, with its concentration showing a marked increase during the maturation process. An inverse relationship was observed between oleuropein and hydroxytyrosol contents, suggesting metabolic interconversion during fruit development. In contrast, only minor variations were detected in the levels of other phenolic monomers and flavonoids (Bouaziz et al., 2005). The total phenolic content ranged from 6 to 16 g/kg, expressed as pyrogallol equivalents, reaching its maximum at the final stage of maturation. The antioxidant capacity of olive extracts was evaluated using the DPPH (1,1-diphenyl-2-picrylhydrazyl) radical scavenging assay. The IC_{50} values varied between 3.2 and 1.5 µg/mL, indicating a strong antioxidant potential. A clear positive correlation was established between antioxidant activity and total phenolic content. Moreover, antioxidant activity increased progressively with fruit maturation, which can be mainly attributed to the accumulation of total phenolic compounds during olive development (Bouaziz et al., 2004). These findings highlight the significant impact of maturation stage on the phenolic composition and antioxidant properties of Chemlali olives and provide valuable information for optimizing harvest time to enhance the functional quality of olive-derived products.

Keywords: Chemlali caltivar, olive oil, phenolic compounds, antioxidant activities

ORCID

Mohamed Bouaziz: 0000-0001-9107-7027
Boutheina Gargouri: 0009-0009-7037-1062

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*Corresponding Author: Boutheina Gargouri.
Email: boutheina_fss@yahoo.fr
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