

Phenols and tocopherols content in Brazilian extra virgin olive oils from six different cultivars

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Highlights

The content of biophenols and tocopherols in 18 Brazilian extra virgin olive oils from six cultivars was analyzed by UPLC-UV-MS. Secoiridoids were the main phenolics found. Alpha-tocopherol corresponded to c.a. 80 % of total tocopherols.

Abstract

Commercial production of olive oil in Brazil has started recently and is concentrated especially in the states of Rio Grande do Sul and Minas Gerais States. It has experienced a constant growing, although it corresponds to only 1% of internal market. Phenolic compounds and tocopherols are important for the oxidative stability of olive oils. As any product from plant origin, chemical composition is dependent on the plant genetics (cultivars, in this case), as well as on the edaphoclimatic conditions where cultivation took place. Herein, we report the results of biophenolics and tocopherols from olive oils of the cultivars Coratina, Frantoio, Galega, Grappolo, Manzanilla and Picual produced in Minas Gerais (MG) and Rio Grande do Sul (RS) states. Phenolic compounds were extracted with MeOH:H₂O and analyzed by UPLC-UV-MS [1]. For tocopherols, samples were diluted in isopropanol and injected, with detection by fluorescence (HPLC-FLR). The concentration of total phenolic compounds ranged from 96 to 330 mg/kg for the samples from MG, and 175 to 615 mg/kg for those from RS. Secoiridoids, hydroxytyrosol and luteolin were the main compounds found: (435 mg/kg for a Picual and 366 mg/kg for a Coratina sample, both from RS. Regarding tocopherols, figures varied from 152 to 235 mg/kg (MG samples), and from 212 to 419 mg/kg for the RS ones. Alpha-tocopherol was the main component (c.a. 80 % of the total), with up to 342 mg/kg in a Coratina from RS. No significant difference ($p > 0.05$) was observed among samples from RS and MG, but there is a trend of higher amounts of tocopherols and phenolics RS samples (Figure 1). The amount of both phenolics and tocopherols are in the range observed for the same varieties cultivated in Europe [2].

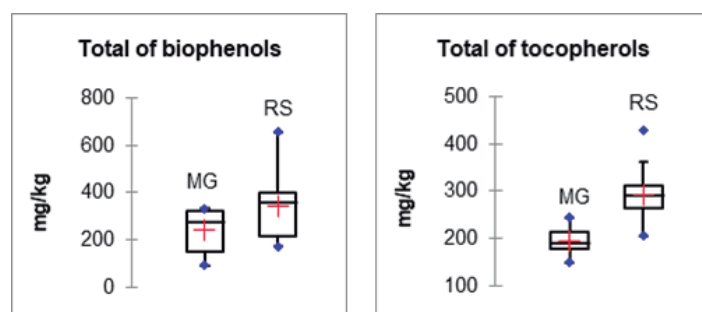


Figure 1. Total concentrations of biophenols and tocopherols by geographic origin.

[1] International Olive Council (IOC). Method COI/T.20/Doc. 29, rev.2. Madrid: IOC, June 2022.

[2] Boskou, D. (ed.). Olive and Olive Oil Bioactive Constituents. Urbana (IL): AOCS Press, cap. 1, p. 1-23, 2015.

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