

Characterization of Virgin Olive Oil from Ayvalık, Gemlik and Memecik

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Fruits from three Turkish cultivars named Ayvalık, Gemlik and Memecik of *Olea europaea* L. grown in the west of Turkey were harvested and immediately processed with Abencor system. Total phenols, peroxide value, free acidity, K_{232} , K_{270} and ΔE value, photometric color index, chlorophyll and carotenoid pigment contents, fatty acid, tocopherol and phenolic compositions of virgin olive oils from Ayvalık, Gemlik and Memecik were determined. Memecik has the highest total phenol value with 528.17 mg GAE/kg and peroxide value with 4.29 mequiv O_2 /kg, but least free acidity with % 0.26 ratios. Furthermore, photometric color index, chlorophyll and carotenoid pigment contents of Gemlik cultivar have the highest values where Ayvalık has the least PCI and carotenoid pigment and Memecik has the least chlorophyll pigment content. Four main fatty acids were found in all samples by using GC-MS where oleic acid between % 72.42 and % 76.59. Other fatty acids are palmitic, stearic and linoleic acids. Tocopherol and phenolic compositions of cultivars were determined by using HPLC. In all samples α -tocopherol content is between 241.40 mg/kg and 418.33 mg/kg. α , β , γ and δ -tocopherol contents of Gemlik cultivar has the highest values. Eight phenolic compounds were determined, hydroxytyrosol, tyrosol, chlorogenic acid, caffeic acid, *p*-coumaric acid, quercetin, luteolin and apigenin. Hydroxytyrosol, tyrosol and luteolin are the major phenolics in all samples. Hydroxytyrosol and tyrosol contents of Ayvalık have the highest values with 19.83 mg/kg and 4.75 mg/kg, respectively. Luteolin content of Memecik has also the highest value with 4.37 mg/kg. Statistically significant differences among olive varieties were found for chemical properties.