

Extra virgin olive oil have different profiles if produced by two-phase vs three-phase centrifugal decanters

Olive oils extracted by two-phase contained more total phenolics, OH-tyrosol and tyrosol and also more volatile compounds and more C5-C6 alcohols & aldehydes

The present study was designed to compare the impact of a 2- versus a 3-phase decanter on the quality parameters, sterols, fatty acids, terpenes, phenolic compounds and volatile compounds, as well as antiradical activity of the obtained oils.

Moreover, serum lipid antioxidant capacity and antiinflammatory potential in human mononuclear cells were tested as more biologically relevant assays than the chemical radical scavenging assays.

Results show that the cold pressed olive oils obtained from both technologies were of the extra virgin quality.

Peroxide values were significantly lower in 2-phase decanter samples, while ω 6 polyunsaturated fatty acids were higher in 2- versus 3-phase samples.

The significantly higher phenolics content in oil produced by 2- versus 3-phase centrifuge was attributed to higher hydroxytyrosol, as well as to higher tyrosol, vanillin and homovanillic alcohol levels.

Evaluation of the effect of centrifuge system on oils' functional properties showed a clear superiority of 2-phase decanter samples as to health maintenance, as these exerted higher ferric reducing capacity, elongation of serum lipid lag time and decrease in cytokine response of stimulated human mononuclear cells, compared to those from 3-phase decanter.

The 2-phase oil samples contained more volatile aroma compounds and more C5-C6 alcohols and aldehydes.

References:

Nick Kalogeropoulos, Andriana C. Kaliora, Anna Artemiou, Ioannis Giogios, Composition, volatile profiles and functional properties of virgin olive oils produced by two-phase vs three-phase centrifugal decanters, LWT - Food Science and Technology, Available online 28 February 2014, ISSN 0023-6438