Accepted Manuscript

Olive oil droplet coalescence during malaxation

Eleni P. Kalogianni, Despoina Georgiou, Stylianos Exarhopoulos

PII:	S0260-8774(18)30306-6
DOI:	10.1016/j.jfoodeng.2018.07.017
Reference:	JFOE 9331
To appear in:	*Journal of Food Engineering*
Received Date:	23 March 2018
Accepted Date:	17 July 2018

Please cite this article as: Eleni P. Kalogianni, Despoina Georgiou, Stylianos Exarhopoulos, Olive oil droplet coalescence during malaxation, *Journal of Food Engineering* (2018), doi: 10.1016/j.jfoodeng.2018.07.017

Olive oil droplet coalescence during malaxation

Eleni P. Kalogianni*, Despoina Georgiou, Stylianos Exarhopoulos

Department of Food Technology, Alexander Technological Educational Institution of Thessaloniki, P.O. Box 141, 57400 Thessaloniki, Greece

*Corresponding author:

e-mail: elekalo@food.teithe.gr

tel: + 30 2310 013907

Address: Department of Food Technology, Alexander Technological Educational Institution of Thessaloniki, P.O. Box 141, 57400 Thessaloniki, Greece

Abstract

Coalescence of olive oil droplets during malaxation is a crucial phenomenon since it is responsible for the effective oil separation in the following processing steps. Yet it has been scarcely examined. The aim of this work was to study in detail the evolution of droplet size distribution during malaxation in actual processing conditions. For that reason experiments took place in an industrial scale olive oil extraction plant. The effect of malaxation time and the effect of water dilution on the droplet size distribution were examined. The results depict the progressive olive oil droplet coalescence and show a clear effect of water dilution on the rate of coalescence. The higher coalescence rate in the diluted paste was attributed to the decrease in viscosity. Finally it was shown that separation of the diluted paste in a two-phase decanter resulted into smaller droplet sizes (and therefore lower oil content) remaining in the paste.

Keywords

Olive paste, malaxation, droplet coalescence, separation, processing variables