conferenceseries.com

15th International Conference on

Food Processing & Technology

October 27-29, 2016   Rome, Italy

Mathematical modeling of the process parameters of a new decanter centrifuge generation

Roberto Romaniello[1], Antonia Tamborrino[2] and **Alessandro Leone[1]**
[1]University of Foggia, Italy
[2]University of Bari Aldo Moro, Italy

The performances' process parameters of an innovative horizontal centrifugal decanter were mathematically modelized. The machine belongs to the decanter's pâté generation and the experiments were conducted in a continuous industrial olive oil extraction plant. Two different configurations have been considered: with water added and without. Mathematical models were developed to predict the extraction efficiency and the oil content in the husk, wastewater and pâté, as a function of the olive paste's mass flow rate. Various statistical parameters (mean percentage error, mean bias error, root mean square error, modeling efficiency and chi-square test) have been used to evaluate the mathematical models' suitability. The models developed showed very good generalization capabilities. The decanter's extraction efficiency resulted high. In particular, the extraction efficiency reached values higher than 90% when the decanter worked with water added. Moreover, in both conditions considered it was been obtained dry solids and olive oil clarified by light solids. The decanter was also demonstrated to be able to switch from one configuration to the other without stopping operation.

Biography

Roberto Romaniello is a Contract Researcher in Agricultural Mechanics, Contract Professor in Mathematics at University of Foggia, Department of the Science of Agricultural, Food and Environment. His scientific research concerns the innovation and optimization of agro-food industry equipment and plants, prototyping new food plant's machines, designing of image analysis protocols for food safety and food quality assessment. He has been involved in research projects aimed to design and prototyping new industrial scale machines and new methods to control the food processes by using different measurement chains.

roberto.romaniello@unifg.it

Notes:

J Food Process Technol 2016
ISSN: 2157-7110 JFPT, an open access journal

Food Technology 2016
October 27-29, 2016

Volume 7, Issue 12 (Suppl)

Page 62