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Olive paste conditioning by an industrial continuous microwave system

Roberto Romaniello¹, Antonia Tamborrino² and Alessandro Leone¹

¹University of Foggia, Italy

²University of Bari Aldo Moro, Italy

A microwave system was developed and applied in an industrial-scale olive oil extraction plant to evaluate the impact of the microwave treatment used to condition the olive paste, to analyze the installation and determine any advantages to improving the process continuity. To this purpose the extraction efficiency of the olive oil plant was investigated for different operating conditions of the microwave system and compared with conventional methods to condition the olive paste. The microwave system was evaluated in terms of extraction yield of the olive, electrical and thermal energy consumption and olive oil quality. The energy consumption evaluation shows that the use of the microwave system requires an additional electric power but non request thermal power with respect to the traditional malaxers machine. The short process time obtained with the microwave treatment resulted in a low peroxide value compared with the conventional method. Using the microwave treatment, a higher concentration of volatile compounds with spicy and bitter notes was obtained. No significant differences were found with extraction yield. The experiments showed the potential of the continuous microwave system to conditioning the olive paste as an alternative technique to effectively condition olive paste.

Biography

Roberto Romaniello is a Contract Researcher on Agricultural Mechanics and a Contract Professor of 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 plants' 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

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