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Red Laser Exposure as innovative technique for development of fermented dairy products

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Probiotics are vital for manufacturing of functional fermented dairy products that are popular dairy foods in many countries. The health benefits of probiotics are mainly attributed to their bioactive metabolites. An innovative technique is used in order to enhance the activities of the probiotics as well as quality of fermented milk. Three red laser dosages, at the wavelength of 632.7 nm, were applied to Lacticaseibacillus casei (L.) NRRL-B-1922 before the fermentation of skim milk. The results revealed that levels of lactose fermentation, organic acids profile, proteolytic activity and total antioxidant capacity were significantly increased [1]. By application of laser treated L. casei in manufacturing of Labneh, the results showed an enhancement in levels of the two major flavor compounds (acetaldehyde and diacetyl) as well as the overall acceptability of Labneh.

In conclusion, A significant improved in the fermentation profile of tested L. casei strain which reflects on the quality of final product. Therefore, the employment of photobiomodulation process might be a potential application at industrial scale.

Keywords: Photobiomodulation, probiotics, functional foods, sensory evaluation, antioxidant

Biography

Fouad M. F. Elshaghabee is an associate professor and Acting Deputy Head of Dairy Science Department, Faculty of Agriculture, Cairo University, Egypt. In 2014, he obtained his Ph.D. from Max Rubner-Institute, Kiel University, Germany. The field his Ph.D. study was nutritional sciences and house-hold economics. He has more than 18 years' experience in the field of higher education. His research focuses on development of probiotic dairy foods and food safety. He has published more than 20 research articles and 3 book chapters.