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Development of new functional bio-edible films with natural antimicrobial agents

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Kefiran is a water-soluble microbial polysaccharide produced by microorganisms present in kefir grains, with several health promoting properties. In the present work, the effects of incorporation of the bioactive compounds extracted from grape seeds (GEE) on kefiran film properties were evaluated. The use of protective edible films on the surface of food products represents a new approach to solving these problems. Currently, they are applied onto various food products to prevent or delay microbial growth, enzymatic and oxidation processes, moisture loss and thus, to extend their shelf-life. Bioactive compounds (such as aroma compounds, pigments, antioxidants, antimicrobial agents, etc.) can be incorporated into edible films to improve the food sensory attributes, functionality, storage stability and safety. The obtained kefiran films were transparent, brittle and their surfaces were smooth without pores. The antioxidant activity of the kefiran/grape seed extract (GEE) films was characterized by means of DPPH method. New edible films containing GEE showed higher antioxidant activity. Furthermore, the antioxidant activity occurred in a concentration-dependent manner. The agar disc diffusion method was used to determine the antibacterial activities of kefiran edible films against *Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa, Salmonella typhimurium* and *Proteus mirabilis.* The kefiarn films were more effective (p<0.05) against three of the five tested bacteria. The obtained kefiran edible films incorporated with GEE showed great potential to be used for active food packaging due to its excellent antioxidant and antibacterial activities.

Biography

Carmen R Pop has completed her PhD from Faculty of Veterinary Medicine, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania and Postdoctoral studies from the same university and research in biotechnology field. She is an Assistant Professor of University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania. She has published more than 61 papers in reputed national and international journals, 3 books and is the Project Coordinator for Mobility projects (2017-2019) and member of 8 projects.

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