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Food quality, food packaging and food waste reduction

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The quality of the ready-to-eat and of the minimally processed food (MPF) is strictly related to the packaging, often made by composite materials, including non-biodegradable ones. This complicates the use of the food waste (FW) as raw materials and, consequently, the possibility of reducing their final amount. To overcome this problem the packaging should be made by only biodegradable (possibly edible) materials but, at the same time, it should have adequate properties: mechanical resistance, impermeability to oxygen, UV-resistance, porosity, and others depending on the specific food. Actually, in the rural society all these conditions were satisfied when packaging or covering food to be preserved for a given time under specified conditions. Moreover, most of the packages were made using byproducts or waste of primary food productions. The modern and industrialized society should restart from this point, identifying a number of raw materials and proper technologies to develop effective food packaging in order to ensure food quality and safety and to reduce the amount of FW. The purpose of this contribution is to show and to discuss a number of significant cases where surplus, byproducts and waste can be successfully used for the industrial production of edible films and biodegradable food packages having properties predetermined on the base of: a) the nature of the food; b) the properties to be preserved; c) the time of preservation. Significant examples of raw materials are: the collagen derived for the internal membrane of the eggshell and the PHA derived from the lactose of whey.

Biography

Gabriele Di Giacomo is a full Professor of Chemical Engineering at University of L'Aquila (Italy). He is the author of more than 100 scientific papers, conference papers and patents. His research interests include phase equilibria and transfer phenomena; supercritical fluids and applications; food waste management and valorization; sites remediation; seawater desalination; renewable energy and bio-fuels; processing of foods and beverages.

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