



Natural biopolymers in organic food packaging

Justyna Wieczynska (1), Ivana Cavoski (2), Ziad Al Chami (2), Donato Mondelli (3), Paola Di Donato (1), and Biagio Di Terlizzi (4)

(1) Dipartimento di Scienze per L'Ambiente, Università Degli Studi Di Napoli "Parthenope", Napoli, Italy, (2) Laboratory of Agricultural and Environmental Chemistry, CIHEAM-Mediterranean Agronomic Institute of Bari, Valenzano, Italy, (3) Dipartimento di Scienze del Suolo, della Pianta e degli Alimenti, Università degli Studi di Bari Aldo Moro, Bari, Italy, (4) CIHEAM-Mediterranean Agronomic Institute of Bari, Valenzano, Italy

Concerns on environmental and waste problems caused by use of non-biodegradable and non-renewable based plastic packaging have caused an increase interest in developing biodegradable packaging using renewable natural biopolymers. Recently, different types of biopolymers like starch, cellulose, chitosan, casein, whey protein, collagen, egg white, soybean protein, corn zein, gelatin and wheat gluten have attracted considerable attention as potential food packaging materials. Recyclable or biodegradable packaging material in organic processing standards is preferable where possible but specific principles of packaging are not precisely defined and standards have to be assessed. There is evidence that consumers of organic products have specific expectations not only with respect to quality characteristics of processed food but also in social and environmental aspects of food production. Growing consumer sophistication is leading to a proliferation in food eco-label like carbon footprint. Biopolymers based packaging for organic products can help to create a green industry. Moreover, biopolymers can be appropriate materials for the development of an active surfaces designed to deliver incorporated natural antimicrobials into environment surrounding packaged food. Active packaging is an innovative mode of packaging in which the product and the environment interact to prolong shelf life or enhance safety or sensory properties, while maintaining the quality of the product. The work will discuss the various techniques that have been used for development of an active antimicrobial biodegradable packaging materials focusing on a recent findings in research studies. With the current focus on exploring a new generation of biopolymer-based food packaging materials with possible applications in organic food packaging.

Keywords: organic food, active packaging, biopolymers , green technology