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Review

Chitosan application for active bio-based films production and potential in the food industry: Review

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Abstract

During the past decade, there was an increasing interest to develop and use bio-based active films which are characterized by antimicrobial and antifungal activities in order to improve food preservation and to reduce the use of chemical preservatives. Biologically active bio-molecules such as chitosan and its derivatives have a significant potential in the food industry in view of contaminations associated with food products and the increasing concerns in relation with the negative environmental impact of conventional packaging materials such as plastics. Chitosan offers real potential for applications in the food industry due to its particular physico-chemical properties, short time biodegradability, biocompatibility with human tissues, antimicrobial and antifungal activities, and non-toxicity. Thus, chitosan-based films have attracted serious attention

in food preservation and packaging technology. This is mainly due to a fact that chitosan exhibits high antimicrobial activity against pathogenic and spoilage micro-organisms, including fungi, and both Gram-positive and Gram-negative bacteria. The aim of the present review was to summarize the most important information on chitosan from its bioactivity point of view and to highlight various preparative methods used for chitosan-based active bio-films and their potential for applications in the food preservation and packaging technology.



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Keywords

Chitosan; Bioactivity; Food; Preservation; Antibacterial; Film; Package

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