

# Bio-based coatings for food processing applications

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## ABSTRACT

Innovations constantly appear in food packaging, always aiming at creating a more efficient quality preservation system while improving foods' attractiveness and marketability. The utilization of renewable sources for packaging materials, such as hydrocolloids from biological origin, is one of the main trends of the food packaging industry. Edible coatings have been considered as one of the potential technologies that can be used to increase the storability of foods and to improve the existent packaging technology, helping to ensure microbial safety and preservation of food from the influence of external factors.

In view of these advantages concerning the application of edible coating solutions, recent developments have been achieved regarding the utilization of new materials. Work has been developed on the application of galactomannans, chitosan, Policaju, and collagen-based coatings on fruits (1, 2), cheese (3, 4) and fish (5), with the incorporation in some cases of antimicrobials and antifungals (5,7). Recently, the layer-by-layer technique was used to apply these bio-based coatings as a nanolayer in fruits such as pears and mangoes (8, 9) using materials such as chitosan, lysozyme, pectin and k-carrageenan.

Globally, results showed that the application of bio-based coatings on food products lead to the improvement of the quality and to the increase of shelf-life of food products. It is viewed that in a near future tailored edible packaging solutions based on natural biopolymers can be applied to selected foods, partially replacing non-biodegradable/non-edible plastics.

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