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Book of Abstracts

Incorporation of functional compounds in edible packaging materials for food applications: influence in materials' properties

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ABSTRACT

Edible packaging is one of the potential technologies that can be used to increase the storability of foods and to improve the existent packaging technology. Recently, edible packaging appears as an efficient vehicle for functional compounds such as antioxidants, antimicrobial and antifungal in order to enhance food stability, quality, functionality and safety. Recent developments have been achieved regarding the utilization of new materials and the study of the incorporation of functional ingredients and the their influence on relevant properties such as barrier, mechanical and surface properties.

Antioxidant compounds such as extracts from *Gleditsia triacanthos* and α-tocopherol were incorporated into galactomannan and chitosan films, respectively, and showed to influence transport, mechanical and colour properties of the films, while also promoting the antioxidant capacity of the films (1,2). The incorporation of antimicrobial compounds, such as nisin, showed to influence the properties of coatings and films, leading to the improvement of the physical properties of the films. Moreover, the obtained coatings and films showed antimicrobial activity against e.g. *Listeria monocytogenes* (3,4). A different behaviour was observed for the incorporation of natamycin in chitosan films were the presence of this antifungal compound lead to the increase of water vapour, oxygen and carbon dioxide permeability (5). Furthermore, the incorporation of bioactive compounds (a peptide fraction from whey protein concentrate hydrolysate, glycomacropeptide and lactoferrin) were tested in chitosan films and the results showed that the addition of protein-based compounds also affected transport properties of the films (6).

Edible packaging shows suitability to incorporate functional compounds for further application in the food industry; it is also shown how the main film properties can be influenced with the incorporation of this compounds.

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