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PROPOLIS APPLICATION IN FOOD PRESERVATION: DEVELOPMENT OF CHITOSAN-BASED EDIBLE FILMS.

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ABSTRACT

Edible films derived from chitosan highlight for its potential as coating packages, due to their antimicrobial activity and low oxygen permeability, while propolis has shown effective as a natural additive due to its antimicrobial and antioxidant properties. Thus, its combination to produce edible films, provides a promising approach to enhance the life span of easily perishable foods. The present study describes the development of edible films based on chitosan produced from chitin extracted crawfish shell, modified with propolis. Chitosan-based films prepared incorporating different concentrations of poplar propolis extracts (0% to 20%), where characterized by FTIR, TGA and SEM. Additionally, mechanical properties, water-solubility, colour and optical transmittance tests were performed to assess the film specificities. The antioxidant and antimicrobial activity of the coating were also studied. The FTIR spectra of the extracted material enable the identification of all major peaks associated to chitosan, corroborating the extraction procedure of chitin/chitosan from crawfish. The addition of propolis to the films decreased the water solubility compared to control. Besides, all films exhibited antioxidant and antimicrobial activity. The output clear indicates that films enriched with propolis may be an alternative candidate for food packing.

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