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Effects of Edible coating materials on storage life and quality of apples

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Abstract

This work focuses on the evaluation of edible films based on chitosan for the preservation of apples. Three treatments were tested: uncoated apples, apples coated with chitosan alone, and apples coated with a chitosan-essential oil blend. Several tests were carried out: HPLC to quantify gallic acid, CO_2 permeability to assess respiration, monitoring of weight loss to estimate dehydration, and visual observation of fruit evolution during storage. An FTIR analysis was also performed to examine the interactions between chitosan and the oil. The results showed that chitosan, especially when enriched with oil, improves polyphenol retention, reduces water loss, slows visual degradation, and demonstrates good molecular compatibility. These films offer promising potential as a sustainable alternative to plastic packaging.

Keywords: Chitosan, Edible film, Apple, Preservation, Polyphenols, HPLC, CO_2 permeability, FTIR