

Gelatine–starch films: Physicochemical properties and their application in extending the post-harvest shelf life of avocado (*Persea americana*)

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Abstract

BACKGROUND: Several storage techniques have been developed to extend the post-harvest shelf life of horticultural products. One method involves the use of edible or biodegradable coatings. Such coatings are made of biological materials that are used to coat fresh products, providing a semi-permeable barrier to water vapour and gases, e.g. O₂ and CO₂. The influence of starch concentration, glycerol content and pH on the carbon dioxide permeability (CO₂P) and mechanical properties of gelatine–starch edible films were evaluated.

RESULTS: Results showed that increments in the starch concentration and pH resulted in higher CO₂P values. Film puncture strength increased when the starch concentration decreased and the maximum resistance value (32.6 N) was obtained at pH 6. Deformation was mainly affected by glycerol and starch content. Some films were chosen in order to evaluate their effect, as coatings, in the post-harvest shelf life of avocados (*Persea americana* Mill c.v. Hass). Fruits were immersed in the coating solutions, air dried and stored at two temperatures. Changes in colour, weight loss and pulp firmness were determined in fruits stored at 6 °C. In addition, respiration rate was measured in avocados kept at 20 °C.

CONCLUSION: The application of gelatine–starch coatings delayed the ripening process of avocados, as indicated by a better pulp firmness and retention of skin colour, and lower weight loss of coated fruits in comparison with control avocados. The coatings also resulted in a delayed respiratory climacteric pattern, by 3 days, for coated fruits.

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