Cactus mucilage as a coating film to enhance shelf life of unprocessed guavas (*Psidium guajava* L.)

J.A. Zegbe, J. Mena-Covarrubias, V.S.I. Domínguez-Canales

Acta Horticulturae 1067: 423-427. 2015.

Abstract

Annual pruning of cactus pear cladodes provides an opportunity for adding value to this crop by extracting mucilage from which to create edible films and coatings for perishable fruits such as guavas (Psidium guajava L.). The objective of this research was to create mucilage films and assess their effects on quality and shelf life of guava cultivar 'Media China'. Cactus pear cladodes were peeled, cubed, and homogenized in distilled water. Mucilage was precipitated using ethanol, then dried and ground. The experimental films tested were: no films as control (C), mucilage plus glycerol (T1), and mucilage plus glycerol and polyethylene glycol (T2). Two experiments were conducted with two different concentrations of mucilage, glycerol, and polyethylene glycol. Guavas were harvested from local farmers and treated with a fungicide before coating. The treated fruit was stored for eight or six days at room temperature (28°C and 20% RH or 27°C and 20% RH, respectively). In the first trial, the T2 film increased fruit weight loss more than C and TI film. Both films delayed fruit skin colour and maintained higher firmness (F), total soluble solids concentration (TSSC), and dry matter concentration (DMC) than C fruit. In the second trial, T1 and T2 films reduced fruit weight loss and delayed fruit skin colour more than C fruit. Firmness, TSSC, and DMC of fruit were similar among treatments. Overall, the experimental mucilage films showed a tendency to prolong shelf life and maintain some quality attributes of guava. Further research is needed to understand the mucilage potential as an edible film at cold room conditions.