Abstract

Effect of Surface Coatings on the Shelf life and Quality of Cassava

Cassava (Manihot esculenta) is grown as an important dietary source of carbohydrates for communities in a number of African countries. However, Cassava is susceptible to postharvest physiological deterioration which affects its quality and leads to the unpalatability and unmarketability of roots after harvest. Edible surface coatings have been found to be effective in preserving the quality of various perishable food products. This study was undertaken with the objective of determining the best combinations and concentrations of both xanthan gum and guar gum capable as a technology for extending the shelf life of harvested cassava roots. Cassava (variety KME 1) was harvested at physiological maturity. The coating formulations used were: 1%, 1.5%, 2% guar gum, 1.5%, 2%, 2.5% xanthan gum, and 1%, 1.5%, and 2.5% xanthan guar/gum combination in the ratio of 1:1 with some roots left as control. Sampling was done at 2-day intervals for 20 days. The coated cassava showed lower respiration and ethylene production rates than the control samples while change in quality parameters; phenols, colour, flesh firmness, weight loss and dry matter content was significantly ($P \leq 0.05$) delayed in the coated samples. The results suggested that using 1.5% xanthan guar/gum as an edible coating, cassava shelf life can be extended by upto 20 days at 25 °C. Keywords: cassava; postharvest loss; xanthan gum; guar gum; edible coatings; quality deterioration