Abstract

Influence of Coating Application Methods on the Postharvest Quality of Cassava

Various modes of edible coating application vary in their coat dispersion and film formation, hence the need to determine the most effective mode of application for cassava. Edible surface coatings have been found to be effective in preserving the quality of various food products. However, there are variations in effectiveness among the different coating solutions, hence the need for optimization of the concentrations of the gums used. This study aimed at determining the most efficient coating application method on the cassava postharvest quality. Physiologically mature cassava (variety KME 1) was harvested and divided into seven portions. The various portions were coated using 1.5% xanthan gum, 1.5% xanthan/guar gum, and 2% xanthan/guar gum by both dipping and spraying method. There was no significant difference on the colour, total cyanide, ethylene production, and total phenolic content between the two application methods. The 2% xanthan/guar gum coating showed a significant difference on the dry matter content while the 1.5% xanthan gum coating had a significant difference on the respiration rate and weight loss. The 1.5% xanthan treated roots had a final dry matter content of 72.5% for the sprayed samples and 75.98% for the dipped sample while the 2% xanthan/guar gum treated roots had a final dry matter content of 64.6% and 74.1% for the dipped and sprayed root samples, respectively. The 1.5% xanthan and 2% xanthan/guar gum treated roots showed no significant difference in their action on dry matter content. The 1.5% xanthan/guar dipped and sprayed samples differed significantly on their effect on flesh firmness with final values of 35.4N and 46.1N, respectively, at 20 days after harvest. This study suggested that based on the coating solution and the parameters being observed, there generally was no varying effect of dipping and spraying methods of coating application. The choice of the efficient mode of application to use will depend on other factors such as the easiness of application.