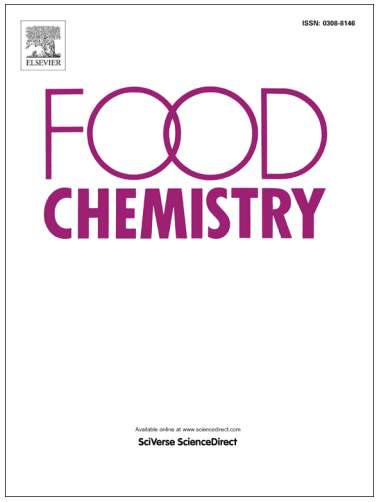

Use of biopolymeric coating hydrophobized with beeswax in post-harvest conservation of guavas

V.R.L. Oliveira, F.K.G. Santos, R.H.L. Leite, E.M.M. Aroucha, K.N.O. Silva

PII: S0308-8146(18)30534-X
DOI: https://doi.org/10.1016/j.foodchem.2018.03.101
Reference: FOCH 22644

To appear in: *Food Chemistry*

Received Date: 21 November 2017
Revised Date: 19 March 2018
Accepted Date: 22 March 2018

Please cite this article as: Oliveira, V.R.L., Santos, F.K.G., Leite, R.H.L., Aroucha, E.M.M., Silva, K.N.O., Use of biopolymeric coating hydrophobized with beeswax in post-harvest conservation of guavas, *Food Chemistry* (2018), doi: https://doi.org/10.1016/j.foodchem.2018.03.101

USE OF BIOPOLYMERIC COATING HYDROPHOBIZED WITH BEESWAX IN POST-HARVEST CONSERVATION OF GUAVAS

V.R.L. Oliveira[a,*], F.K.G. Santos[a],R.H.L. Leite[a],E.M.M.Aroucha[a], K.N.O. Silva[b]
[a]Universidade Federal Rural do Semi-Arido/UFERSA, 59.600-000, Rio Grande do Norte, Brazil.
[b]Universidade Federal do Rio Grande do Norte/UFRN, 59.078-970, Rio Grande do Norte, Brasil.
*vrafaeloliveira@uol.com.br

ABSTRACT

Biopolymeric coatings are effective in maintaining the chemical and sensory characteristics of fruits and vegetables because they preserve innumerable nutrients effectively for long periods of storage. Coatings based on cornstarch (3%), cassava starch (2%) and gelatin (5%) were synthesized. Beeswax (BW) was added as a hydrophobic agent in the polymeric network at different concentrations relative to the dry base of biopolymer. The biofilm containing 10% BW presented the best results in the water vapor transmission rate (WVTR) and the effect of the BW incorporation was also evaluated from surface roughness and SEM. An 80% increase in elasticity and 15% decrease in solubility indicated resistance against unfavorable environmental conditions. Physical-chemical analysis showed that its use minimized weight loss, guaranteeing adequate ripening of the fruits during 15 days in a regulated environment: 15ºC±2ºC, 90% ±2% RH. The sensorial attributes indicated better acceptability of these fruits, demonstrating the potential of this coating.

Keywords: Biopolymeric coatings, Water vapor transmission rate, Beeswax, Guavas, Sensory attributes.

1. INTRODUCTION

The growing demand for sustainable food production and the need for them to present high nutritional quality has boosted the fruit and vegetable market and attracted several investments in the area of packaging production since they pack the products, protecting them from several factors, provide better storage, and can improve their visual characteristics. Although it presents several utilities, such packaging is a waste of growing demand that causes serious environmental problems because it is non-biodegradable. One of the possibilities for replacing non-biodegradable packaging is the approach of new storage techniques such as the development of polymeric, biodegradable and edible coating (Chiumarelli & Hubinger, 2014; Zhang, Xiao, & Qian, 2014).

This type of post- harvest technology has shown great potential, low cost and suitable characteristics for use in food and have attracted the attention of many researchers because they