

Carrageenan as an alternative coating for papaya (*Carica papaya* L. cv. Eksotika).

ABSTRACT

Edible coatings are gaining popularity compared to other types of packaging due to their more environmental friendly nature and ability to carry active ingredients. In this study, a two-factor central composite design (CCD) was used to optimize a carrageenan-based edible coating formulation for coating of 'Eksotika' papayas. The effect of a carrageenan-based [carrageenan (0.2–0.8%, w/v) and glycerol (0–1%, w/v)] coating on firmness and colour components (L, a and b values) of papaya was evaluated. From the optimization study, no significant ($p > 0.05$) lack of fit was found for the reduced model for all response variables (firmness, L, a and b values) tested. Coefficients of determination (R^2) ranging from 0.767 to 0.952 were obtained for these responses. From the multiple response optimization analysis, a combination of 0.78% (w/v) carrageenan with 0.85% (w/v) glycerol for a carrageenan-based coating was predicted to give desirable effects for the response variables tested, with no significant ($p > 0.05$) differences between the experimental and predicted values.

Keyword: Edible coating; Carrageenan; Eksotika papaya; Firmness; Colour; RSM.