

Effects of glycerol and stearic acid on the performance of chickpea starch-based coatings applied to fresh-cut papaya

ABSTRACT

This study examined the potential of incorporating stearic acid in starch-based edible coating formulations in order to increase the quality and shelf-life of fresh-cut papaya ("Sekaki" variety). Glycerol was employed as plasticizer and stearic acid was incorporated in proportions of; 0 %, 1%, 2%, and 3% (w/w). Film with 30% glycerol, 1% stearic acid, 5 g of starch, and 5% aloe Vera was chosen because it had low film solubility and water vapour permeability (29.54 ± 0.21 , 2.99 ± 0.21), respectively. Furthermore, this film had slightly darker L^* value (78.19 ± 1.21) which is an advantage because it will be able to reduce the loss of ascorbic acid (AA) which is sensitive to light and acceptable level of mechanical property. The properties of the fresh-cut papayas were analysed during 12 days of storage at 10°C. The results obtained showed that the edible coating (i.e. film with 30% glycerol, 1% stearic acid, 5 g of starch, and 5% aloe Vera) significantly improved the physiochemical properties of fresh-cut papaya in terms of reduced weight loss, better firmness, better colour retention, and a slight decrease in AA content during storage. Furthermore, the microbial analysis showed that, the coating was able to extend the shelf life of fresh-cut papaya up to 12 days at refrigerated conditions.

Keyword: Fresh-cut papaya; Edible coating; Stearic acid; Shelf-life; Quality