

Title Effect of alginate and gellan-based edible coatings on the quality of fresh-cut pineapple during cold storage

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Abstract

Pineapple is one of the most popular fruits in Malaysia and consumer demand for fresh-cut pineapple is increasing in world markets. However, its shelf life is limited. The aim of this work was to study the effect of alginate and gellan-based edible coatings on changes in colour, weight loss, firmness and respiration rate of fresh-cut 'Josapine' pineapple during 16 days storage at $10\pm 1^{\circ}\text{C}$; $65\pm 10\%$ RH. Uncoated fresh-cut pineapple at the same condition served as control. The results showed that for colour, the L^* (lightness) and chroma decreased over time in all treatments. However, L^* and chroma in coated samples were significantly ($p < 0.05$) higher than the control. The hue angle of control samples was significantly ($p < 0.05$) lower than coated samples. Weight loss increased over time during storage. After 16 days, the weight loss of control was $22.4\pm 0.9\%$, but the weight loss of both alginate and gellan coated samples were significantly lower than control ($15.4\pm 0.8\%$ and $16.5\pm 0.6\%$ respectively). Respiration rate of fresh-cut pineapples with alginate or gellan coating was significantly ($p < 0.05$) lower than control during storage. Firmness of coated samples during storage was not significantly different with the fresh sample. However, the firmness of control after 16 days was significantly ($p < 0.05$) lower than fresh sample (1.39 ± 0.19 N and 2.54 ± 0.28 N respectively). The results obtained in this study indicate that alginate and gellan-based edible coatings could significantly reduce weight loss and respiration rate and maintain the colour and firmness of fresh-cut pineapple during low temperature storage as compared with the control (uncoated sample).