

Effect of chitosan and carrageenan-based edible coatings on post-harvested longan (*Dimocarpus longan*) fruits

ABSTRACT

The effect of chitosan/carrageenan and glycerol as edible coating materials in preserving the fresh longan fruits stored at ambient temperature was evaluated. The concentration of coating components played an important role in the process of controlling quality changes and quantity losses. Changes in fruits' weight loss, respiration rate and color were used as a measure of the coating's effectiveness. Results have shown that increase in the chitosan or carrageenan concentration led to significant ($p < 0.05$) decreases in water loss, weight loss and respiratory rate in coated fruits. However, in carrageenan-coated fruits, high increase in concentration ($> 1.19\%$) of the carrageenan resulted in slight increases in water and weight losses. From the multiple response optimization analysis, a combination of 1.29% (w/v) chitosan with 0.42% glycerol and 1.49% (w/v) carrageenan with 0.03% glycerol were predicted to give the desired coating because they were able to preserve the longan by showing minimal quality changes and quantity losses.

Keyword: Fresh fruit; Preservation; Weight loss; Respiration rate; Response surface methodology