

Effects of konjac glucomannan/pomegranate peel extract composite coating on the quality and nutritional properties of fresh-cut kiwifruit and green bell pepper

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Abstract

The effects of an edible coating, based on konjac glucomannan (KG) incorporated with pomegranate peel extracts (PE), on the physicochemical and nutritional properties of fresh-cut kiwifruit and green bell pepper during storage were investigated. The optimal extract time (40.6 min), temperature (54.5 °C), and ultrasound power (255.5 W) with response surface method, provided a high total antioxidant activity (TAA) of $(92.31 \pm 1.43)\%$. Fresh-cut kiwifruit and green bell pepper were coated by dipping using five treatments (distilled water, ascorbic acid, KG, PE, KG + PE), packed into polymeric film and stored for 8 days at 10 °C. Distilled water treatment was used as control. KG + PE treatment resulted in the highest total soluble solid and titratable acidity in fresh-cut kiwifruit, while the maximum firmness in fresh-cut green bell pepper. The weight loss was both effectively decreased in samples treated with KG or KG + PE. All samples treated with KG + PE had significantly higher contents of chlorophyll, ascorbic acid, total phenolic and TAA than others. Moreover, the KG + PE group had the lowest counts of microorganisms in all samples. KG coating incorporated with PE was proved to be efficient in maintaining the physico-chemical and nutritional properties of fresh-cut kiwifruit and green bell pepper during low temperature storage compared with control.