

Ascorbic acid incorporated with walnut green husk extract for preserving the postharvest quality of cold storage fresh walnut kernels

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Abstract

This study assessed the effects of antioxidant edible coating on the walnut green husk extract (WGHE) in combination with ascorbic acid (AsA) and the effects were studied on the postharvest quality of fresh kernels (FKs). FKs were dipped in distilled water (Control), WGHE (0.15 and 0.3 g L⁻¹), AsA 1% and the combination of treatments. The samples were stored for 60 days at 4 ± 1 °C with 93% relative humidity. The results showed that low temperature increased the levels of total phenols (TP), reduced the polyphenol oxidase (PPO) enzyme activities after 15 days of storage and preserved the antioxidant activity (AC) for up to 30 days of storage. Compared with uncoated kernels, all coated samples inhibited the increase in microbial growth, peroxide index (PI) and PPO activity. The values of TP, AC, color and sensory properties were also significantly preserved as a result of coating the FKs. In summary, all edible coatings may be used to extend the shelf life of the FKs in dry environment.