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Prolonging the shelf life of ‘Agege Sweet’ orange with chitosan–rhamnolipid coating

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Abstract

This study evaluates the single and combined usage of chitosan (2% w/v) and rhamnolipid (2% w/v) as edible coatings to extend the shelf life of sweet oranges stored at 25 °C for 8 weeks. Physiochemical, microbial and sensory analysis of the oranges was conducted during ambient storage. The combined treatment of chitosan and rhamnolipid coating on oranges significantly delayed a loss in chlorophyll quality, malondialdehyde, weight loss, soluble solids content, titratable acidity, vitamin C content and delayed the loss of firmness during the 8 weeks of storage. The combined chitosan–rhamnolipid coating significantly increased the activities of superoxide dismutase, catalase, and peroxidase, as well as inhibited the generation of superoxide free radicals and the growth of mesophilic bacteria, yeast and mould.

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Ethics declarations

Conflict of interest

The authors declare no conflict of interest.

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