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Effect of chitosan-limonene coating in combination with modified atmosphere packaging on postharvest properties of cucumber fruit

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Abstract

Since cucumbers suffer from a short postharvest life, applying different technologies is increasingly used as effective ways to increase their shelf life and quality. In this study a combination of chitosan-limonene coating and MAP storage has been used as a postharvest treatment to maintain cucumber quality. Samples were stored in three different packages: A (21% O₂, macro-perforated package to be in equilibrium with air); package B (active MAP, starting concentrations 10% O₂ + 5% CO₂); package C (passive MAP starting concentrations 21% O₂ + 0.1 % CO₂); they were stored at three temperatures (20, 10, and 4 °C). Quality parameters of cucumber such as pH, total soluble solid, firmness, chlorophyll content, microbial growth, and overall sensory acceptability were determined. Interactive effects of coating, package, temperature, and storage time showed that coating and MAP in general had positive effects on several quality aspects. Coating combined with active MAP had the most positive effect on most postharvest attributes. However, using active MAP at higher temperature led to quality problems and is only useful if storage time is short. The combined usage of MAP and chitosan-based coating on cucumber represents an innovative and interesting method for commercial application.

Biography

Dr. Gisoo Maleki is pursuing her Ph.d at Ferdowsi University of Mashhad, Iran. She published many articles in reputed journals and attended international conferences.

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