

Title Microbial and quality evaluation of green peppers stored in biodegradable film packaging
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Citation Food Control, Volume 18, Issue 9, September 2007, Pages 1121-1125
Keywords Biodegradable film; Packaging; Green pepper; Microbial quality; Physicochemical quality

Abstract

The effects of polylactic acid (PLA) based biodegradable film packaging on the microbial and physicochemical quality of green peppers (*Capsicum annuum* L.) were compared to the effects of low-density polyethylene (LDPE) film packaging, and perforated LDPE film packaging. Each package containing green peppers was heat-sealed and stored for 7 days at 10 °C. The microbial levels (aerobic bacteria, coliform bacteria, and yeast and moulds) and physicochemical properties such as colour, weight loss, hardness, ascorbic acid concentration, O₂ and CO₂ concentrations, were monitored during storage. Results indicated that the physicochemical properties of colour, hardness, ascorbic acid concentration, and microbial levels (total aerobic bacteria, and moulds and yeasts) did not show remarkable changes during storage period. The microbial levels in coliform bacteria were increased by less than 1 log CFU/g (0.2 log CFU/g) in the biodegradable film packaging, 2.3 log CFU/g in LDPE film package, and less than 1 log CFU/g (0.9 log CFU/g) in the perforated LDPE film package, after 7 days storage period. The results suggest that the biodegradable film with higher water vapor permeability can be used to maintain the quality and sanitary conditions (protection from microbial and insect contamination) of freshly harvested green peppers in modified atmosphere packaging.