Title Combined effect of packaging atmosphere and storage temperature on growth of *Listeria* monocytogenes on ready-to-eat shrimp

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Abstract

Cooked, peeled, and deveined shrimp were inoculated with a 5 strain mixture of *Listeria monocytogenes* and packaged in air, vacuum, and a 100% carbon dioxide modified atmosphere. The packaged shrimp were then stored at 3, 7, and 12 °C for 15 days to monitor the growth of *L. monocytogenes* and psychrotrophic bacteria. Uninoculated shrimp were also subjected to sensory evaluation by a trained panel to measure odor and appearance over the storage period. Results demonstrated that shrimp packaged in CO_2 and stored at 3 °C did not permit growth of *L. monocytogenes* during the 15-day storage period, while all other packaging/temperature combinations allowed for multiplication of the bacterium. Carbon dioxide packaging also resulted in the slowest growth of psychrotrophic bacteria and resulted in shrimp having acceptable sensory odor and appearance scores at the end of storage. When strict temperature control is difficult, such as during processing, transportation, retail display, or home use, additional antimicrobial hurdles may be necessary to ensure safety.