

Title Effectiveness of chitosan edible coatings to improve microbiological and sensory quality of fresh cut broccoli

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Abstract

The effects of chitosan edible coating on microbiological and sensory quality of refrigerated broccoli were studied. The antimicrobial effects of chitosan on the native microflora (mesophilic, psychrotrophic, yeast and molds, lactic acid bacteria and coliforms) and on the survival of *E. coli* O157:H7 inoculated in broccoli were evaluated.

Chitosan treatments resulted in a significant reduction in total mesophilic and psychrotrophic bacteria counts with respect to the control samples during the entire storage period. There was an immediate decontaminating activity of chitosan. At the end of the storage, yeast and molds was the most dominant flora representing the largest part of the total aerobic counts. Lactic acid bacteria (LAB) numbers remained relatively low during the whole storage in all samples. Chitosan coating inhibited the growth of total coliform throughout the storage time. Also, chitosan treatments resulted in a bactericidal effect on *E. coli* endogenous and a significant decreased in total *E. coli* counts (endogenous and O157:H7). The application of chitosan coating on fresh cut broccoli inhibited the yellowing and opening florets. The results of this experiment showed that the use of chitosan coating is a viable alternative in controlling the microorganisms present in minimally processed broccoli, improving its sensory quality.