

**Title** Anitmicrobial washing and coating technology for extending freshness of carrot

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### **Abstract**

To investigate the effect of washing treatment on decay of carrot slices, various solutions were tested. The most effective treatments for maintaining market quality of carrot slices used 2% thiabendazole and 5% sodium hypochlorite. Microorganisms isolated from decayed carrot were identified by 16s rDNA nucleotide sequencing and physiological characterizations as *Erwinia carotovora*, *Rhizopus oryzae*, and *Phomopsis mali*. To improve antimicrobial effect of chitosan, 2% chitosan in 0.5% acetic was ultrasonicated at 15 kHz, 30 W and several compounds were added to this solution. An electron microscope was used to examine chitosan treated spores of *Rhizopus oryzae* that were swollen and distorted. Ultrasonicated 2% hitosan in 0.5% acetic acid containing 0.5% potassium sorbate, 1.0% lauric acid 10% Triton X-100 resulting in the most effective treatment to maintain overall market quality of sliced carrot dehydration, decay, and loss of peel color.