

## Survival and growth parameters of *Escherichia coli* O157:H7, *Salmonella* Spp. and *Listeria monocytogenes* on fresh-cut pieces prepared from whole cantaloupe treated with Lovit Sanitizer

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Incidence of food borne illness due to consumption of fresh-cut melons contaminated with human bacterial pathogens and recalls of such contaminated fresh-cut melons continues to be a food safety problem. Cantaloupe rind surfaces were inoculated with three cocktail of *E. coli* O157:H7, *Salmonella* spp. and *Listeria monocytogenes*, respectively at 4.8 log CFU/cm<sup>2</sup>. Inoculated cantaloupes were washed in chlorinated (1000 mg/L) water and Lovit, a novel sanitizer developed in our laboratory for 5 min before preparing fresh-cut pieces. Prepared fresh-cut pieces were stored at 5, 10, 15 and 22°C for days and survival and growth parameters of *E. coli* O157:H7, *Salmonella* spp., and aerobic bacteria were analyzed by an optimized Huang growth model to calculate lag phases and growth rates at the storage temperature. Similarly, the growth data of *L. monocytogenes* were analyzed using a 3-parameter logistic model. Average *Salmonella* spp., *E. coli* O157:H7, and *L. monocytogenes* populations recovered in fresh-cut cantaloupes from water washed whole cantaloupes was 3.3, 3.5 and 3 log CFU/g, respectively. Populations on fresh-cut pieces from chlorinated and Lovit sanitized whole cantaloupes were significantly lower, averaging 0.9 log CFU/g and below detection, respectively. Storage temperature affected survival and growth of each class of bacterium on fresh-cut cantaloupe. Results showed the specific growth rates of *E. coli* O157:H7, *Salmonella* spp., and *L. monocytogenes* were very similar, while the background microorganisms grew 60-80% faster and with shorter lag phases. The results of this study indicate that Lovit is a better alternative sanitizer for inactivating bacteria on melon rind surfaces.

### Biography

Dike O. Ukuku got his Ph.D. Food Microbiology from Wayne State University, Detroit, Michigan, 1995. He is a Fellow of King-Chaves-Parks Future Faculty, 1993, and a Fellow of Japan Society for Promotion of Science, 2006. He was invited to the Membership of Science Advisory Board, 2009-present, a Gold Medalist, for Outstanding public Service 2009, USDA-OPEDA Unsung Hero Award, 2010, Outstanding Technical Achievement for Food Safety, 2012 Award. Has authored or coauthored more than 60 publications. He is on editorial board membership of three scientific journals, has numerous invitations to act as an in depth subject matter expert for manuscripts submitted to scientific journals, as well as Grant programs including USDA's SBIR phase 1, BARD and 1890 Institutions

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