



SURVIVAL OF *ESCHERICHIA COLI* O157:H7 ON RAW MATURE GREEN TOMATOES DURING STORAGE TEMPERATURE ABUSE

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ABSTRACT

Tomatoes are important agricultural commodity, which are often consumed fresh without final pathogen elimination step. Being harvested as mature green fruit with further ripening, their shelf life can be greatly increased after harvesting. It is important to immediately cool down harvested fruit to 15°C to avoid decay and optimize storage. The purpose of the current study was to evaluate survival of five-strain *Escherichia coli* O157:H7 cocktail on the undamaged surface of green mature tomatoes during 4-day storage at 25°C, 15°C, and temperature abuse conditions, such as slow ramping from 25°C to 15°C over duration of the experiment. Pathogen numbers declined 1.5 log units from theoretical inoculation level of 6.8 log₁₀ cfu/mL of rinsate to 5.3 log₁₀ cfu/mL upon 90 minutes inoculum drying, and significantly continued to decline during storage at both 25°C and 15°C, as well as temperature abuse conditions, resulting in final counts of 1.5, 2.4, and 2.6 log₁₀ cfu/mL on day 4 for 25°C, 15°C, and ramp, respectively. The fastest decline was observed in 25°C stored tomatoes. Placing tomatoes immediately into 15°C incubator, or gradually decreasing storage temperature over a 4-day period, preserved the state of viability of *E. coli* O157:H7 comparing to other treatment.
