

Title Attachment of *Escherichia coli* 0157:H7 to Lettuce and Carrot Surfaces and Possible Internalization
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Abstract

Potential attachment and internalization of *Escherichia coli* 0157:H7 to fresh produce was investigated using scanning electron microscopy (SEM). Pieces (approx. 0.5 x 0.5 cm) of baby carrots and lettuce were inoculated by submerging them into a suspension of *E. coli* 0157:H7 (8.3 log CFU/ml) for 4 h at ambient (20°C) and refrigeration temperature (4°C) and allowed to drain of filter paper in a laminar flow hood. Then, the pieces were fixed with cacodylate buffer, dehydrated in an ethanol series, dried in critical point dryer, and coated with gold using a sputter coater for SEM examination. The results indicated that *E. coli* 0157:H7 cells could attach to both carrots and lettuce with greater numbers attached at ambient rather than at refrigeration temperature. *E. coli* 0157:H7 attached to produce surfaces at different angles which may affect intensity of attachment. *E. coli* 0157:H7 could internalize through stomata in lettuce. Due to processing, stomata were missing on the baby carrots. However, visible mechanical damage from processing was observed on the surface of baby carrots and played a role in bacteria internalization. Internalization may result in an underestimation of bacterial contamination and reduce sanitizing efficacy due to limited contact with sanitizing agents.