Titlle: **Cross-contamination of ready-to-eat roast beef by *Listeria monocytogenes* treated with subletal concentration of quaternary ammonium, during mechanical slicing**.

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Cross-contamination of foods with undesirable microorganisms, such as *Listeria monocytogenes*, caused by direct or indirect contact with contaminated surfaces and handlers, can have serious consequences for the consumer. Slicing of ready-to-eat foods at retail level can be a source of cross-contamination and be hazardous, as no killing step is applied before consumption. Quaternary ammonium is commonly used to sanitize processing equipment and utensils. However, *L. monocytogenes* may survive the treatment and then contaminate food products. Transfer of *L. monocytogenes* was investigated from surface-inoculated roast beef to commercial slicing machine surfaces and from a contaminated slicer to clean roast beef. A strain of *L. monocytogenes* serotype 1/2c was pre-treated with the disinfectant quaternary ammonium base (0,04%) for 10 min and then inoculated of roast beef to obtain an inoculum of about 6.0 log CFU/g. Experiments were carried out with ready-to-eat roast beef pieces purchased in local supermarkets and checked for the absence of *Listeria monocytogenes* using the ISO 11290-2:1998 method. To start, a meat matrix was created in a manual meat slicer by slicing a piece of roast beef negative for *L. monocytogenes.* Another piece of roast-beef was experimentally contaminated with *L. monocytogenes* by immersion in a suspension containing 8 log CFU/mL of the pathogen and sliced, causing the experimental contamination of the slicer. Subsequently, new pieces of non-contaminated roast-beef were sliced, until 200 slices were obtained. To assess the extent of the pathogen transfer (cross contamination), counts of *L. monocytogenes* were carried out in the first slice, in every 5th slice up to the 50th slice and in every 10th slice up to the 200th slice. The experiment was repeated three times. For the contaminated slice, the counts of *L. monocytogenes* were 4,62 ± 0,1 log CFU/g. Average counts of *L. monocytogenes* in first cross-contaminated slice were 3,65 ± 0,8 log CFU/g. The mean counts of *L. monocytogenes* from the second slice to the 130[th] slice was 1,93 ± 0,9 log CFU/g. From the 140[th], counts of *L. monocytogenes* were below the detection limit (<10 CFU/g). *Listeria* cells survived exposure to processing environments which were not effectively sanitized with disinfectant might pose great potentials of cross-contamination.

Keywords: Cross-contamination, ready-to-eat meat products, *Listeria monocytogenes*, disinfectant.

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