8ᵉ Symposium du CRIPA

21-22 mai 2015

Affiche

Validation of CRSV method for detection and serotyping of Listeria monocytogenes isolates in pork slaughterhouse and cutting facilities

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Health Canada's (HC), Policy on *L. monocytogenes* (*L. mono*) in Ready-To-Eat Foods, implemented in 2011, highlights environmental verification and control of meat processing facilities as important risk reduction tools.

To promote effective implementation of the Policy by the industry, the University of Montreal's Research Chair in Meat Safety (CRSV) aims to provide an accurate description of residual *L. mono* contamination in pork meat production facilities.

In the present study the CRSV has cooperated with (HC) for the purpose of comparing the performance of detection methods for *L. mono* at early pork-processing steps, and to collect multiple *L. mono* isolates for further genetic characterization of bacterial populations in processing plants.

A total of 71 swabs were taken at a meat-processing facility. Samples covered various areas such as lairage, post-evisceration area, cold room and cutting surfaces.

The samples were tested in parallel with 3 microbiological methods (MFPBH-30, a modification of MFHPB-30 & CRSV internal method) and a commercial DNA-based screening kit (DuPont BAX for *L. mono*).

L. mono was detected in 19.71% (14/71) of the samples which is concordant with results obtained previously in other similar facilities.

Most of the positives originated from cutting surfaces, which showed the highest proportion of contaminated samples, 71.42% (10/14) of all positives. The sensitivity of all cultural methods was the same (92.9%) while that of BAX was slightly lower (85.7%). Each cultural method missed one positive sample while BAX system missed two.

Complete serotyping confirmed that no strain selection could be demonstrated whatever the microbial method considered.

The internal CRSV method was revealed to be the most efficient cultural method in terms of hands-on-time and costs. This study confirms the validity of results obtained with the CRSV method in prior and supports its use in the context of large-scale monitoring.