



September 9-12, 2013 • Portland, Maine USA

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Data on distribution and characterization of *Listeria monocytogenes* strains in a pork slaughter and cutting plant in Quebec support an earlier surveillance in the meat production chain

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Listeria monocytogenes is a major public health concern. It reveals to the consumers only during mediated outbreak events. It was the case in 2008, when a massive episode (23 deaths) in Canada showed the need to reinforce the policy to control *Listeria* in ready-to-eat production. Increasing surveillance in the production plants environment increased the detection occurrences that have to be taken in charge by both industries and control agencies. In Canada, there is currently no surveillance policy of this microorganism in the steps preceding ready-to-eat production. The effective presence (distribution and diversity) and the characterisation of this microorganism in the slaughter and cutting environments are not documented either. The goal of the present study is to provide such data, starting with a plant in Quebec. Moreover, recent studies on properties such as biofilm forming and virulence (presence of SNP in InlA) suggested for certain strains a more environmental behaviour, than virulent one. Such characterisation will be presented. The plant was sampled at three occasions, after the cleaning and disinfecting procedures, during a two-year

period. A total of 874 samples were collected. *Listeria* detection followed the Health Canada standard method, geno-serogrouping was obtained by PCR and isolates were compared by PFGE after *Apa1* and *Asc1* restriction. Four serogroup (mainly I/IIb) were shown, and 21 genotypes were described and compared to human clinical strains profiles. We reported an increase in occurrence of *Listeria monocytogenes* following the processing steps (χ^2 p<0.05). On the contrary the diversity strongly and repeatedly decrease from step to step : 96.1% of the strains, in the cutting room, presented the same profile. Biofilm formation ability of strains will be available and SNP in *InlA* be studied after sequencing. Our results indicate that better knowledge of *Listeria monocytogenes* before food processing is needed to optimise *Listeria monocytogenes* control under a risk analyse approach.

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