

Genomic characterization of persistent *Listeria monocytogenes* isolates in slaughterhouse and cutting facility environments.

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Listeria monocytogenes is a foodborne pathogen that causes listeriosis, an important illness due to high fatality rates of about 20%. The ability of this organism to colonise and persist in food processing plants increases food contamination risks. Persistent contamination occurs when a sporadic strain becomes a resident of specific niches in manufacturing environments.

The aim of this work was to evaluate relationships among *L. monocytogenes* isolates based on the occurrence of single nucleotide polymorphisms (SNPs) in resident and sporadic strains isolated from a cutting facility environment collected during three different visits, over a period of two months. A total of 29 strains were recovered; 18 strains belonged to PFGE type 1 and six strains to type 16. These two types were present at each visit and were considered resident contamination since all of the sampling was done after cleaning and sanitation. An additional six different PFGE types isolates: 6, 8, 9, 10 and 18 were sporadically isolated during the sampling period.

The 29 isolates were sequenced and comparatively analyzed using WGS-based tools. Sequencing was performed on the Illumina Miseq technology. High quality SNPs were identified and analyzed with SNVphyl pipeline and Samtools on the PATRIC platform (<https://www.patricbrc.org/>). Logistic regression was used to compare the relatedness between SNPs occurrence and period of sampling for the resident and sporadic isolates. Preliminary results showed that there were no significant SNPs based differences in the clonally-related isolates. The phylogeny tree constructed confirmed the clonally-related resident isolates defined by PFGE. This result meant that there was an unresolved contamination in the industry due to either the ability of *L. monocytogenes* to form biofilm which confer an important resistance to disinfectants or a mechanical protection for the bacteria in the case of hard-to-clean areas. These results provide important information to food manufacturers on the adaptation of cleaning and sanitation methods.