Abstract

Listeria monocytogenes is an opportunistic foodborne pathogen capable of withstanding various stress conditions, enabling its adaptation through biofilm formation. This characteristic poses a significant challenge to the food industry. The species is classified into 13 serotypes, of which only four (1/2a, 1/2b, 1/2c, and 4b) account for 89.0% to 98.0% of listeriosis cases worldwide. This suggests that certain *L. monocytogenes* strains have a higher likelihood of causing disease than others. The objective of this study was to detect and serotype *Listeria monocytogenes* isolates from different food matrices and environmental monitoring samples from processing plants in Argentina. The analyzed matrices included meat products, ready-to-eat foods, water-based beverages, dairy products, and frozen vegetables. A total of 2,124 samples were examined between 2016 and 2021, from which 291 isolates compatible with *L. monocytogenes* were identified, yielding a positivity rate of 13.7% for this pathogen. Subsequently, 180 isolates were selected for molecular serogrouping analysis through the optimization of a molecular technique. While serotypes 1/2a, 1/2b, 1/2c, and 4b are the most frequently detected in food products, this study found that serogroup IIa (n=9) accounted for 5.0%, IIb (n=116) for 68.9%, IIc (n=37) for 20.5%, and IVb (n=10) for 5.6%. Among the 180 analyzed strains, 161 were derived from food matrices, while 19 were obtained from environmental monitoring in food manufacturing facilities.

Additionally, species-level identification was performed using MALDI-TOF MS, demonstrating that selective and differential culture media yield reliable results for this purpose.

This study highlights the importance of *L. monocytogenes* detection and serotyping for implementing effective control measures and outbreak identification. Furthermore, it represents the first extensive study in Argentina analyzing this pathogen in various food matrices.