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**Occurrence and phenotypic and molecular characterization of *Listeria monocytogenes* and *Salmonella* spp. in slaughterhouses in southern Brazil**

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# ABSTRACT

This study addressed the occurrence of *Listeria monocytogenes* and *Salmonella* spp. in bovine carcasses at two slaughterhouses in southern Brazil. Then, the antimicrobial susceptibility profile and the virulence potential of the isolates were evaluated. Two hundred carcasses were sampled at four steps of the slaughter process, with *L. monocytogenes* being isolated in 12 and *Salmonella* spp. in 17 carcasses. All *L. monocytogenes* isolates carried the *hlyA*, *prfA*, *plcA*, *plcB*, *actA*, *iap*, *mpl*, *inlA*, *inlB*, *inlC*, and *inlJ* genes, while *Salmonella* spp. carried *invA* and *hlyA*. Among the *L. monocytogenes* isolates, all of them presented virulence determinants and one showed multi-drug resistance. In relationship to *Salmonella* spp. isolates, many serogroups frequently related to outbreaks of foodborne diseases were identified and four isolates showed resistance to more than one antimicrobial agent. This data highlights the importance of a rigid hygienic-sanitary control during the slaughter process to reduce the risk of cross-contamination and lower the consumer exposure to *L. monocytogenes* and *Salmonella* spp. infections.

**Keywords:** *Listeria monocytogenes*; *Salmonella* spp.; bovine carcasses; multi-drug resistance

## 1 Introduction

The bacterial contamination of beef is facilitated in several stages of the slaughter process, for example during skinning, evisceration and pre-cooling, which are

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