ABSTRACT

Food safety is a priority issue due to recurrent food poisoning caused by pathogens including *Staphylococcus aureus*. Due to its zoonotic potential, the control of *S. aureus* is not only of great economic importance in the dairy industry, but also a major public health concern.

The present study aimed to analyze the antibiotic resistance and virulence of *S. aureus* strains isolated from the production chain of Polish artisanal cheeses. The results showed that a high percentage of *S. aureus* isolates showed resistance to many antibiotics used to treat cattle infections, including tetracyclines, penicillins and macrolides, which are commonly used to treat infections in cattle. In addition, many *S. aureus* isolates were shown to possess virulence genes that may affect the bacteria's ability to cause infections in humans. In addition, it was found that stress factors associated with food production and fixation, such as pH change and NaCl concentration, could affect the expression of enterotoxin genes.

The research conducted in this dissertation underscores the need for continuous monitoring *of S. aureus* strains in the food production chain, and implies the need to increase awareness among homestead cheese producers of the risks associated with these bacteria and to promote proper hygienic practices in the production process, which will consequently increase consumer health safety.