

## GENETIC PROFILE OF *S. aureus* DETECTED IN FRESH PORK AND CHICKEN SAUSAGES

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### Abstract:

Meat and meat products are foods of concern to public health services, especially by their physic and chemical composition which is favorable to the growth of micro-organisms, like pathogenic bacteria such as *Staphylococcus aureus*. Among these products, the fresh sausage is preferred by consumers. Fresh sausages can be handmade or industrial produced and are not subjected to heat treatment and/or desiccation, showing high water activity ( $A_w$ ) and pH close to neutrality, allowing to pathogenic bacteria growing and the consequent toxin production. The aim of this study was to isolate and identify *S. aureus* in frescal sausages, determine the antimicrobial susceptibility profile and the presence of virulence genes. Eighty six samples of handmade and industrially produced fresh pork or chicken sausages were collected from 43 butchers located in a metropolitan region of the state capital of Goiás and had the temperatures measured. The *Staphylococci* isolation was performed by standard methods. The isolates were submitted to antibiotic disk diffusion test, pulsed field gel electrophoresis (PFGE) and to virulence genes detection by polymerase chain reaction (PCR). It was observed that 68.6% of the samples showed temperatures above 4° C, ranging from 4.98 to 9.89 °C. Six samples were contaminated by *Staphylococcus* sp. and seven isolates were obtained, but with counts according the limits established by the Brazilian legislation ( $5.0 \times 10^3$  CFU/g). Of the seven isolates, three that were obtained from different brands and from different butchers, were identified as *S. aureus* by the detection of *femA* gene. These three isolates showed sensibility to all antibiotics tested, and 100% of similarity by PFGE technique, indicating the possibility of a specific strain circulation or a common source of contamination. All isolates presented genes that encode the hemolysins A and B and the enterotoxin H. One of them, additionally presented genes that encode the enterotoxins G and I. Therefore, the low prevalence of *S. aureus* found in these foods does not exclude the possibility of involvement in food-borne outbreaks. It is evidenced the need to observe the storage conditions (temperature) and handling of this product in order to prevent the expressive amounts of toxins production and consequent risk for the outbreaks occurrence.

**Keywords:** Meat products, *Staphylococcus aureus*, Enterotoxins