TITLE: IDENTIFICATION OF *cap*5 AND *cap*8 GENES IN ISOLATES OF *Staphylococcus aureus* AND *Staphylococcus* sp. SURFACE MILKING ENVIRONMENT INSIDE THE DAIRY FARM OF THE STATES OF BAHIA AND PERNAMBUCO

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ABSTRACT:

The *Staphylococcus* genus is a notable cause of mastitis in the herds as it is a bacterium with important virulence factors, such as the capacity to produce capsule, biofilm and resistance to antibiotics. The capacity of this bacterium to produce a capsule of polysaccharide (Cp) is an essential factor for protection, especially when it infects a host, conferring anti-phagocytic ability. Most *Staphylococcus aureus* can receive two capsule classifications: the thicker macrocapsules Cp1 and Cp2, more rarely found, as well as the fine microcapsules (Cp5 and Cp8). The Bacteria can produce only one type of this capsule, and the Cap5 and Cap8 genes are responsible for encoding the most abundant type. This study aims to verify if the strains of *Staphylococcus* sp. and *S. aureus* isolated from the milking environment (milker machine / floor / teat / hand) have the genes Cap5 and Cap8. The Bacteria were identified according to their morphological and biochemical characteristics. Isolates classified as *Staphylococcus* sp. and *S. aureus* were used in DNA extraction for molecular identification. The Polymerase Chain Reaction (PCR) was performed with the primers cap5 (start 5'-CGAACCGATGATTGATGCTATTG-3' and end 5'-TGCTATGACTGCACCAGTATTT-3') and cap8 primers (start 5'-GGAGGAAATGACGATGAGGATG-3' and end 5'-TAGCTTCTGTAGCGGTGAATG-3'). PCR parameters for gene amplification were as follows: 94 °C for 5 min (initial denaturation); 32 cycles of 94 °C for 1 min, 61 °C for 1 min and 72 °C for 1 min; and 72 °C for 5 min (final stretch). PCR products were visualized on a 2% agarose gel stained with Blue Green Loading Dye I (LGC Biotechnology) and photographed under UV illuminant (Molecular Imaging L.PIX Loccus biotechnology). Of the 22 isolates analyzed, 22.72% were positive for the cap5 gene (5 isolates) and 45.45% for cap8 (10 isolates) and 31.81% were negative for both isolates (7 isolates). Therefore, it was concluded that the identification of these genes from samples of environmental isolates may represent a risk for the producers, once this bacterium is susceptible to infect the herd and this characteristic of virulence hinders the immune response against the bacterium.

KEYWORDS: genes, *Staphylococcus aureus*, surface, *cap5*, *cap8*

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