

TITLE: INTERFERENCE OF PROPOLIS ETHANOLIC EXTRACT ON BIOFILM PRODUCTION BY *STAPHYLOCOCCUS* SP.

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ABSTRACT:

Biofilms are complex bacterial arrangements, surrounded by an extracellular polymeric matrix, providing protection and resistance to microorganisms. Species such as *Staphylococcus aureus* and *Staphylococcus epidermidis*, originated from cases of mastitis, have high efficiency for adhesion on biotic and abiotic surfaces, producing biofilms with a high degree of organization. This study aimed to verify the interference of the Propolis extract on the production of biofilm by *Staphylococcus* sp. from bovine mastitis. For phenotypic characterization, detection and quantification of biofilms of the samples, the plaque adhesion technique was used, and then plaques were taken by the reader of Elisa Easys® and measured in a filter of 620 nm. Among 40 samples tested, 14 (35%) presented a strong biofilm production, 17 (42.5%) presented moderate biofilm production, 8 (20%) were weak and one (2.5%) was classified as non-producing biofilm. The assay was analyzed in triplicate. According to a previous experiment that determined the minimum bactericidal concentration of the Propolis ethanolic extract, two different concentrations were used (781.3 and 1562.5 µg / mL) on the biofilm in formation. Both concentrations interfered in the biofilm production by the isolates, in which 11 samples changed from a strong biofilm producer to a moderate biofilm producer. According to the obtained results, there was a significant difference between the control group and the test group, being possible to verify that in the control treatment, the biofilm production was superior to the group in which it used the Propolis. The chemical analysis of the Propolis extract used showed high levels of phenolic compounds, and these can act as inhibitors of bacterial enzymes, preventing the strategies of microbial defense. It is suggested that the Propolis extract has the capacity to interrupt the bacterial signaling system, preventing adhesion and biofilm production, presenting potential for disinfection and adjuvant in mastitis therapies.

Keywords: *Staphylococcus* sp.; biofilm; Propolis;