

TITLE: EFFECT OF SECRETATED MOLECULES BY STRAINS OF *Staphylococcus* spp. IN GROWTH AND PRODUCTION OF BIOFILME BY PATHOGENIC SPECIES OF *Staphylococcus*

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ABSTRACT:

Staphylococcus epidermidis is often isolated from the microbiota of human skin and its role has already been described in reducing colonization by possible pathogens, such as *Staphylococcus aureus*. *S. aureus* causes a variety of infections in humans. Among the main reasons for the success of this species as a pathogen, we highlight the production of biofilm and increasing resistance to antibiotics, justifying the need for searching new therapeutical strategies. *Staphylococcus pseudintermedius* is found on the skin and mucosa of dogs and has been frequently isolated from veterinary infections. *S. pseudintermedius* shares characteristics with *S. aureus*, including the ability to form biofilm. Although dogs are in constant contact with humans, cases of infection in humans by *S. pseudintermedius* are considered rare, indicating a possible competition between these bacteria. Thus, this study aimed to investigate the production of secreted molecules by *S. epidermidis* and *S. aureus* isolated from humans with activity in the growth and biofilm production of clinical strains of *S. aureus* and *S. pseudintermedius*. Cell-free conditioned media (MCLCs) from 7 *S. epidermidis* strains, and 4 *S. aureus* strains were prepared. The impact of *S. epidermidis* MCLCs on *S. aureus* growth and biofilm production were analyzed, as well as the impact of *S. aureus* MCLCs on *S.*

pseudintermedius growth and biofilm production. The MCLCs of 2 strains of *S. epidermidis* were able to inhibit *S. aureus* growth, and MCLCs of the other strains reduced biofilm production. The MCLC of one *S. aureus* strain was able to inhibit *S. pseudintermedius* growth, whereas MCLCs of the other strains reduced biofilm production. Preliminary characterization of MCLCs has demonstrated that *S. epidermidis* MCLCs with antimicrobial activity are sensitive to trypsin and heat exposure and that *S. aureus* antimicrobial MCLC is sensitive only to sodium metaperiodate. These results may help to understand the relationship between members of the microbiota and pathogens, aiding in the search for new therapies.

KEYWORDS: *Staphylococcus aureus*. *Staphylococcus epidermidis*. *Staphylococcus pseudintermedius*. Biofilm. Growth.

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