

TITLE: BIOFILM FORMATION IN THE PRESENCE OF ANTIBIOTICS BY *Staphylococcus capitis* ISOLATED FROM FOMITES

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ABSTRACT:

Staphylococcus capitis is a member of the resident skin microbiota and as an opportunistic pathogen and has been associated with sepsis in neonates, meningitis, and endocarditis. Despite the role of the species in these infections, little is known about its pathogenicity. Inanimate objects are known as fomites due to *Staphylococcus* ability to adhere, colonize and form biofilm. The surface of these objects might be directly contaminated by secretions and body fluids or indirectly by the transfer of microorganisms and other vehicles. The study aims were determined the resistance to oxacillin and vancomycin and biofilm production with both oxacillin and vancomycin and without antibiotic using different methods. The antimicrobial resistance (oxacillin and vancomycin) were determined by the broth microdilution method (CLSI, 2019). The capacity of the biofilm formation was investigated by testing the Congo Red agar (*slime*) and adhesion assays abiotic surfaces (glass and polystyrene) in the presence and absence of antimicrobials and PCR to *icaA* gene, previously described by Sued-Karam et al (2017). Nine strains identified as *S. capitis* were isolated from different fomites. All strains were oxacillin resistant, 89,5% were vancomycin susceptible while one strain (10,5%) was intermediate. Without antibiotic, 74% strains were *slime* producers and 100% adhered to the glass. In the presence of oxacillin, 74% of analyzed strains were *slime* producers and all strains were capable to adhere to the glass in different intensity. In the presence of vancomycin, 95% of the strains produce *slime* while 79% were able to adhere to the glass. All strains were capable to form biofilm in polystyrene in different intensities with and without antibiotics. The presence of the *icaA* gene was detected in 77,7% of the strains. *S. capitis* has a high resistance to many antibiotics used in the hospital routine. Although its pathogenic mechanisms are poorly understood, it is believed that its ability to cause infection is closely related to its ability biofilm formation. Therefore, the rational use of antibiotics and permanent surveillance of both pathogenicity and resistance is necessary.

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