

TITLE: EVALUATION OF BIOFILM PRODUCTION AMONG CLINICAL ISOLATES OF BETA-HEMOLYTIC STREPTOCOCCI

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ABSTRACT:

Biofilm formation is a mechanism that allows for the survival and proliferation of bacteria in biotic and abiotic environments. It is an important factor for the maintenance of infections, since microorganisms in biofilm become more resistant to antimicrobial and host defense. Thus, biofilm can be considered a virulence factor for the bacteria that produce them. Over time, biofilm production has not been a factor investigated among beta-hemolytic *Streptococcus* species, but, recent studies have shown the capacity of *Streptococcus pyogenes* (Group A Streptococci, GAS), *Streptococcus agalactiae* (Group B Streptococci, GBS) and *Streptococcus dysgalactiae* subsp *equisimilis* (SDSE) to form biofilm. These comprise the species of beta-hemolytic streptococci of major importance in human medicine and are often isolated in the laboratory routine. They are agents of several infections that affect individuals of various ages and can cause severe complications. The aim of the present study was to analyze the ability of these three species to form biofilms in vitro and to verify if there was an association among biofilm production and antimicrobial resistance or the presence of epidemiological markers genetic determinants. The ability to form biofilm was evaluated by two methodologies, polystyrene microtiter plate and glass surface. Twenty-five isolates from different patients and clinical specimens were analyzed. These isolates presented distinct *emm* types (GAS and SDSE) or capsular types (GBS) and antimicrobial susceptibility patterns. All isolates were capable to form biofilm with different degrees of production, being classified as strong (9), moderate (13) and weak (3) producers. SDSE isolates were, in general, classified as strong producers, while GAS and GBS were classified, mainly, as moderate producers. No significant association was observed between the higher capacity to form biofilm and *emm* or capsular types, as well as the occurrence of antibiotic resistance.

Keywords: Biofilm, polystyrene, glass, beta hemolytic streptococci

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