TITLE: INFLUENCE OF THE POLYSACCHARIDIC CAPSULE IN BIOFILM FORMATION IN *STREPTOCCUS PNEUMONIAE*

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ABSTRACT:
Streptococcus pneumoniae (Spn) is a gram-positive bacterium, commonly associated with pneumonia, otitis media, meningitis, among other diseases, leading to about one million deaths annually worldwide, children and the elderly correspond to the main risk group. This pathogen is able to form biofilm, which favors colonization and bacterial dispersion, enabling the emergence of multidrug-resistant strains, contributing to increased virulence during infections, being extremely important worldwide. This study aimed to analyze pneumococcal strains to understand how the different types of the capsule can influence the formation of biofilm. For this, we performed biofilm formation tests on microplates using pneumococcal strains belonging to different capsular serotypes. As a result, strains 0603 (serotype 6B) and A66 (serotype 3) showed higher biofilm formation when compared to the other serotypes tested. This result was consisted even when different time points were analyzed, an interesting result because it has already been described that a longer time generates more mature biofilms, our hypothesis is that although time is important to maturate the biofilm, it establishment is constant since the beginning. In addition, we compared wild type (WT) and mutant strains, unable to produce capsule, we observed significant changes in how mutant strains produce higher amounts of biofilm when compared to wild type, this result is true for both analyzed strains, our hypothesis is that once you remove the capsule, the adhesines are more exposed, allowing bacteria to attach stronger to the substrate. On a whole, our results support the hypothesis that polysaccharide capsule influence the biofilme formation for the pneumococcal, once removed, the bacterium is able to form more biofilm than the WT.

Keywords: Biofilm, *Streptococcus pneumoniae*, Polysaccharidic Capsule

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