Título: INFLUENCE OF HYDROSTATIC POTENTIAL IN BIOFILM FORMATION BY *Streptococcus agalactiae*

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Resumo:

Streptococcus agalactiae (Group B Streptococcus; GBS) is a common agent of clinical and subclinical bovine mastitis, accounting for great economic losses in dairy industry worldwide. Additionally, it is an important source of severe diseases in newborns and pregnant women, and an emerging cause of invasive infections in nonpregnant adults, mostly in those presenting underlying conditions. The pathogenesis caused by GBS is a multifactorial process that includes the ability of bacteria to adhere, colonize, invade epithelial and endothelial cells and evade the defenses of the host immune system. The prevalence of infections caused by GBS may be associated with their ability to form biofilm, which is considered an important virulence factor. The biofilm is defined as a community of microorganisms attached to surfaces of biotic or abiotic material comprising encapsulated in extracellular matrix, polysaccharides, proteins and nucleic acids. The capacity of bacteria to produce biofilms varies in response to environmental factors, such as hydrostatic potential (pH) and osmolarity. The aim of this study was to evaluate the biofilm production of 8 GBS strains (human and bovine isolates) in simulated vaginal fluid (SVF) at pH 4.2, 5.5, 6.5 and 7.2. All strains were also tested using tryptone soy broth (TSB) medium at the same pH used for SVF. Crystal violet staining and scanning electron microscopy were used to analyze the capacity of biofilm production. All bovine isolates investigated were biofilm producers but biofilm production was greater in TSB compared to SVF after 24 h incubation at pH 6.5 and pH 5.5, respectively. For GBS human isolates the quantify biofilm production was low varying between 0.2-0.6 optical density (OD) after 24 h incubation in TSB and SVF at pH 6.5 and pH 5.5, respectively. Our finding suggested that enhanced biofilm formation at acid pH are potentially advantageous for GBS in colonizing vagina and increase the risk of vaginosis, neonatal infection and mastitis.

Palavras-chaves: *Streptococcus agalactiae*, Biofilm, pH
Agências fomento: FAPERJ, CNPq and SR2-UERJ.