



## **BIOFILM FORMATION AT DIFFERENT pH LEVELS BY GROUP B STREPTOCOCCUS ISOLATED FROM PREGNANT WOMEN**

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### **Abstract**

Group B Streptococcus (GBS) causes neonatal and maternal infections. Many bacterial species are capable of formation of biofilms and there is a growing body of evidence implicating biofilms in various human infections. Some studies investigated the GBS biofilm formation under neutral and acidic pH and found that larger biofilms formed at pH 6.5 or 7 than normal vaginal pH 4.2. However, some studies found that biofilm formation was enhanced at a low pH as 4.2. Conflicting data were reported regarding biofilm forming ability at different pH levels. Aim of this study was to determine the effects of pH changes on biofilm forming ability of GBS isolated from pregnant women in Western Province, Sri Lanka. A descriptive cross-sectional study was carried out from January to July 2019 in selected hospitals. Vaginal swabs were collected from 130 pregnant women at 35-37 weeks of gestation. Specimens were cultured according to standard methods. A total of 30 confirmed isolates of GBS out of 130 samples were tested for biofilm forming ability by using Todd Hewitt broth (THB) supplemented with 1% glucose at pH 4.5, 6.0 and 7.0. Average Optical Density with standard deviation (SD) was calculated. At pH 4.5, 13 isolates (43.3%) were non biofilm formers (NBF) and others formed weak/moderately strong biofilms. There were no strong biofilm formers. At pH 7, 17 (56.6%) and 11 were strong and moderate biofilm formers respectively. This shows that biofilm formation is sensitive to pH changes and is enhanced at a higher pH level. Determination of biofilm formation by GBS from vaginal swabs may be useful for developing an effective treatment plan for neonatal sepsis. High vaginal pH may be a risk factor for GBS infection and also influence both GBS survival and biofilm production.

**Keywords:** Biofilm, Different pHs, Group B Streptococcus