

POLYSACCHARIDE PRODUCTION AND BIOFILM FORMATION BY *Pseudomonas fluorescens*: EFFECTS OF pH AND SURFACE MATERIAL.

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Although the synthesis of extracellular polysaccharides has been recognized in certain bacterial cultures since a long time ago, its role in bacterial adhesion is still subject to some debate.

Several fermentation batch cultures were performed at different conditions of pH (pH 7 and pH 8, maintained with NaOH and HCl, pH 7 phosphate buffer, and without pH control) in order to study the relation between the production of extracellular polysaccharides and biofilm formation on polymeric slides suspended in the culture medium. The polymers used were: polystyrene, polypropylene, low and high density polyethylene and polyvinylchloride.

The maximum amount of exopolysaccharides in the culture medium occurs at pH 7 (controlled with NaOH and HCl), although the thicker biofilms are formed when there is no pH control. It should be noted that the NaOH can dissolve part of the capsular polysaccharides and this may bias the determination of polysaccharides in suspension.

The biofilms were analysed by Scanning Electron Microscopy (SEM) and by Wavelength Dispersion Spectroscopy (WDS). Biofilm morphology seems to be much more dependent on the type of substrata than on the pH of the medium: for different pH values, a polymeric network can be more clearly observed on biofilms formed on all surfaces except the polyvinylchloride one.