

1<sup>st</sup>. European conference on Biofilms: Prevention of microbial Adhesion, Osnabrück, April/March, 2004

## P26

### **Inhibition of *S. epidermidis* adhesion to hydrogel contact lenses by anionic and non-ionic surfactants**

Lívia Santos<sup>1</sup>, M. Elisabete C.D. Real Oliveira<sup>2</sup>, Rosário Oliveira<sup>1</sup> and Joana Azeredo<sup>1\*</sup>

<sup>1</sup>Centro de Engenharia Biológica, Universidade do Minho, Portugal

<sup>2</sup>Centro de Física, Universidade do Minho, Portugal

\*jazeredo@deb.uminho.pt

In this study the adhesion of *S. epidermidis* to the 4 FDA groups of hydrogel CL uncoated and coated with  $\frac{1}{2}$  CMC of an anionic (sodium cholate) and a non-ionic surfactant (octylglucoside) was assessed. The results revealed that cell adhesion to CL was highly dependent on surface hydrophobicity. Concerning the effect of surfactants, the non-ionic one was more effective in inhibiting microbial adhesion than the ionic surfactant. Octylglucoside promoted an inhibition in the extent of bacterial adhesion of about 62%, while sodium cholate caused a decrease in the number of cells adhered of about 43%. The effect of a commercial multipurpose care solution containing 1% of poloxamine was compared and the results indicate that adhesion inhibition was greater when 0.33% of octylglucoside was used. Octylglucoside is a natural surfactant, non-toxic, harmless to the eye, and due to its high efficiency in inhibiting microbial adhesion, as proved in this work, is recommended to be incorporated in CL care solutions.