

EFFICACY OF WORN SILICONE HYDROGEL CONTACT LENSES DISINFECTION BY A MULTIPURPOSE SOLUTION

**¹Lívia Santos, ¹Diana Rodrigues, ²Madalena Lira, ¹Rosário Oliveira, ³Eva Yebra
Pimentel-Vilar, ²M. Elisabete C. D. Real Oliveira and ¹Joana Azeredo**

¹Centro de Engenharia Biológica, Universidade do Minho, Braga – Portugal

²Departamento de Física (Optometria), Universidade do Minho, Braga – Portugal

³Departamento de Óptica e Optometria, Universidade de Santiago de Compostela,
Santiago de Compostela, Espanha

The ocular environment is challenged by several microbes from the conjunctiva or skin as from the environment. When a CL is placed in the eye microbes tend to adhere to its surface making the cornea more vulnerable to infections. To maintain the normal eye ecology, CL disinfection is an essential procedure. The aim of this work is to evaluate the disinfection capability of a multipurpose solution (MS) to silicone hydrogel CL previously worn by human subjects.

Tested CL were Balafilcon A, Galyfilcon A, Lotrafilcon A and Lotrafilcon B. The MS was Renu Multiplus[®] (Baush&Lomb). Previous to the disinfection experiments CL were colonised with the strain *Staphylococcus epidermidis* 9142. The MS disinfection capability was evaluated through the degree of removed bacteria using a parallel plate flow chamber. The remaining cells were stained with propidium-iodide to verify their viability.

The MS was capable to remove the adhered cells except for Balafilcon A (p=0.144) and Lotrafilcon B (p=0.522) which were found through contact angle measurements and AFM to be very hydrophobic and rougher. Nevertheless, staining with propidium-iodide revealed that a great amount of the remaining adhered cells were not viable (Balafilcon A (61%) and Lotrafilcon B (53%)).

The MS seems efficient in removing bacteria from less hydrophobic and smoother surfaces. In our concern MS provides an appropriated maintenance to the lens wearer's ocular environment due to its removing and bactericidal properties.