

Test Report:

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Title: Assessment of activity of antimicrobial fabric of EyeDoctorPremium® fabric

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Purpose: To determine the antimicrobial activity of the antimicrobial fabric compared to the control fabric supplied by EyeDoctorPremium®.

Methods: Untreated (control) and treated fabric (test) materials were cut into 1cm² size following aseptic techniques and exposed to *Staphylococcus aureus* strain 38 (isolated from Contact Lens-induced Peripheral Ulcer) with 10-times diluted tryptone soya broth and *Pseudomonas aeruginosa* 6294 (isolated from microbial keratitis) with phosphate buffer saline (PBS). The fabrics were incubated for two hours at 37°C with a gentle shake (120 rpm) following a method published previously[1]. After this, fabrics were gently washed in PBS to remove loosely bound bacteria, followed by vigorous vortexing in 2mL of PBS to dislodge the adhered bacteria from the fabric. The suspension then serially diluted and plated on nutrient agar plates for determination of viable count. Viable bacteria were enumerated as CFU/1cm² fabric material after overnight incubation in 37°C.

Results: Control fabric material showed 5.35±0.07 log and EyeDoctorPremium® treated fabric material showed 5.05±0.07 log *S. aureus* adhesion respectively. Similarly, control fabric material showed 5.2±0.14 log and EyeDoctorPremium® treated fabric material showed 4.75±0.07 log *P. aeruginosa* adhesion. This indicates that the EyeDoctorPremium® fabric was able to induce 0.3 log (50%) and 0.46 log (65%) reduction to *S. aureus* and *P. aeruginosa* adhesion respectively, and these inhibitions were statistically significant (P<0.001). It is anticipated that the inhibitions could be higher if the fabrics are tested for a longer period.

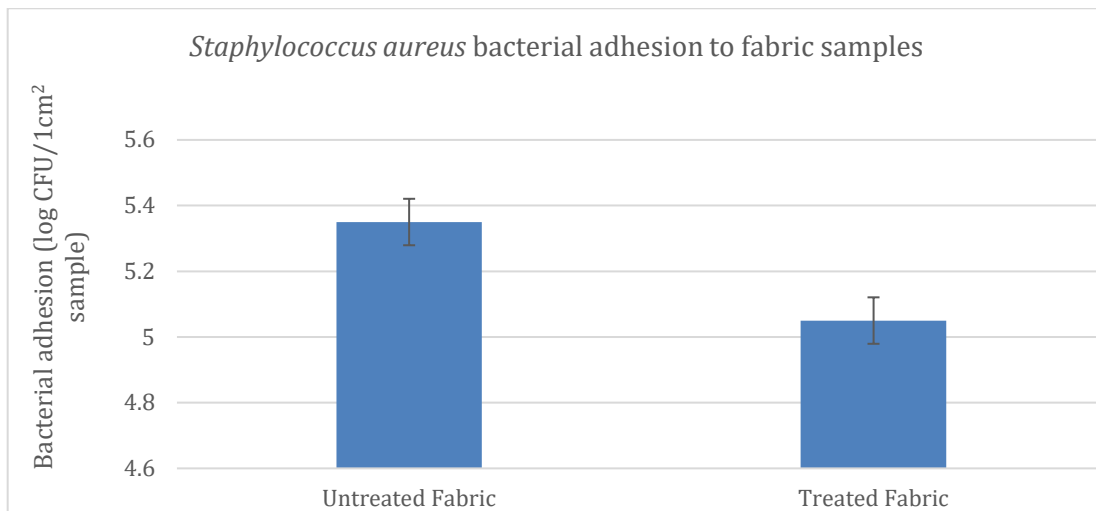


Figure 1: *Staphylococcus aureus* strain 38 adhesion to untreated & treated fabric materials.

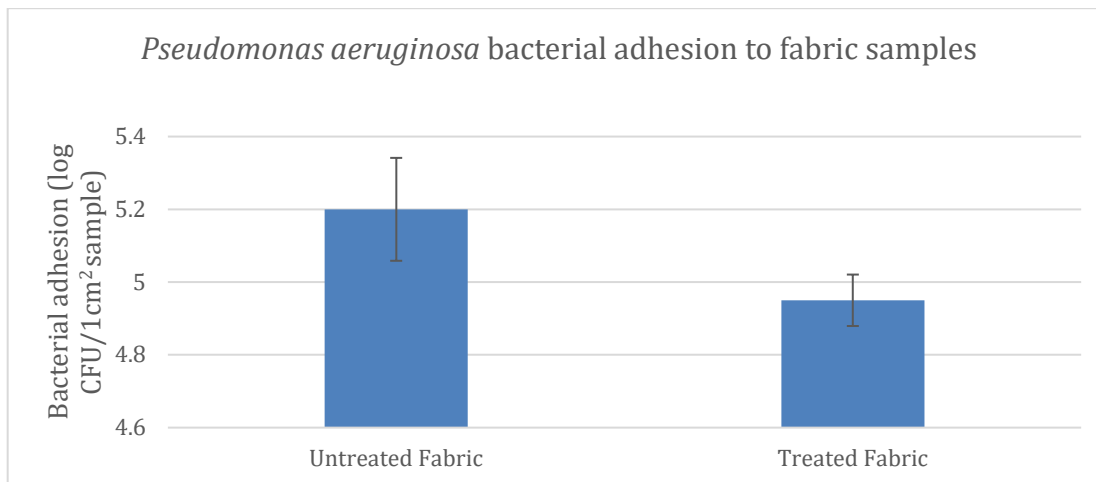


Figure 2: *Pseudomonas aeruginosa* strain 6294 adhesion to untreated & treated fabric materials.

Conclusion: EyeDoctorPremium® antimicrobial fabric can significantly reduce contamination of ocular pathogenic bacteria compared to control fabric. The inhibition induced by the fabric likely to reduce microbial contamination of the eye during clinical use.

References:

[1] Dutta D, Willcox MDP. A laboratory assessment of factors that affect bacterial adhesion to contact lenses. *Biology* 2013;2(4):1268-81.