

Enhanced Antimicrobial Efficacy and Energy Efficiency of Low Irradiance 405-nm Light for Bacterial Decontamination

Archives of Microbiology

Lucy G Sinclair¹ (0009-0007-8121-7795), lucy.g.sinclair@strath.ac.uk

John G Anderson¹ (0000-0003-4151-1619), j.g.anderson@strath.ac.uk

Scott J. MacGregor¹ (0000-0002-0808-585X), scott.macgregor@strath.ac.uk

Michelle Maclean^{1,2*} (0000-0001-5750-0397), michelle.maclean@strath.ac.uk

¹The Robertson Trust Laboratory for Electronic Sterilisation Technologies (ROLEST), Department of Electronic & Electrical Engineering, University of Strathclyde, Glasgow, UK, ²Department of Biomedical Engineering, University of Strathclyde, Glasgow, UK.

*Corresponding author email: michelle.maclean@strath.ac.uk

Online Resource 1

This file contains the inactivation kinetics of *E. faecium* (Fig. 1), *K. pneumoniae* (Fig. 2), *A. baumannii* (Fig. 3) and *E. cloacae* (Fig. 4) at population densities of 10^1 - 10^8 CFU plate⁻¹ upon exposure to 405-nm light at an irradiance of 0.5 mWcm⁻² for 16-h (28.8 Jcm⁻²) and 24-h (43.4 Jcm⁻²).

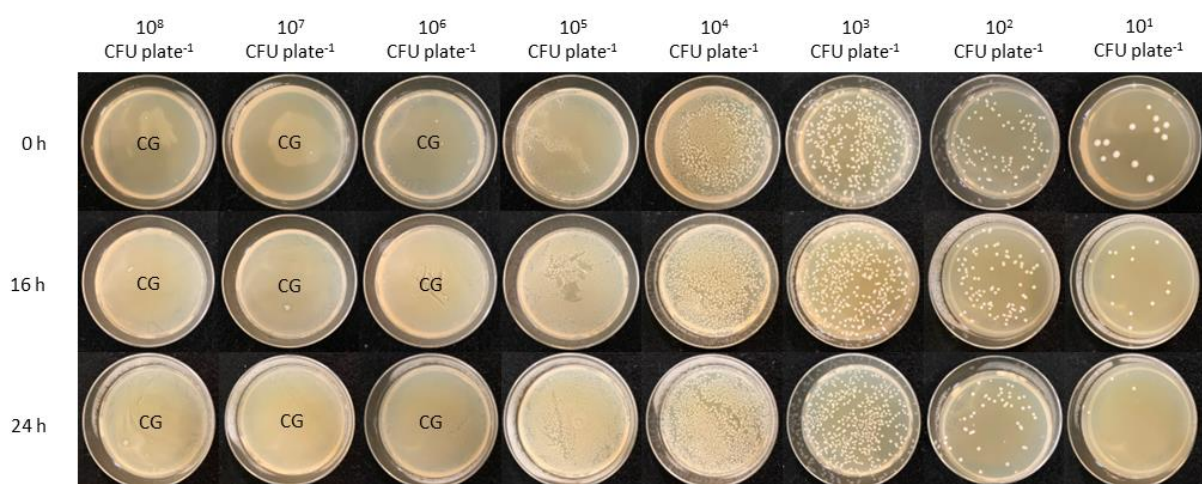


Fig. 1 Appearance of *E. faecium* at 10^8 – 10^1 CFU plate⁻¹, after exposure to 0.5 mWcm⁻² 405-nm light for 16 h and 24 h (28.8 and 43.4 Jcm⁻², respectively). CG represents plates with confluent growth of bacteria.

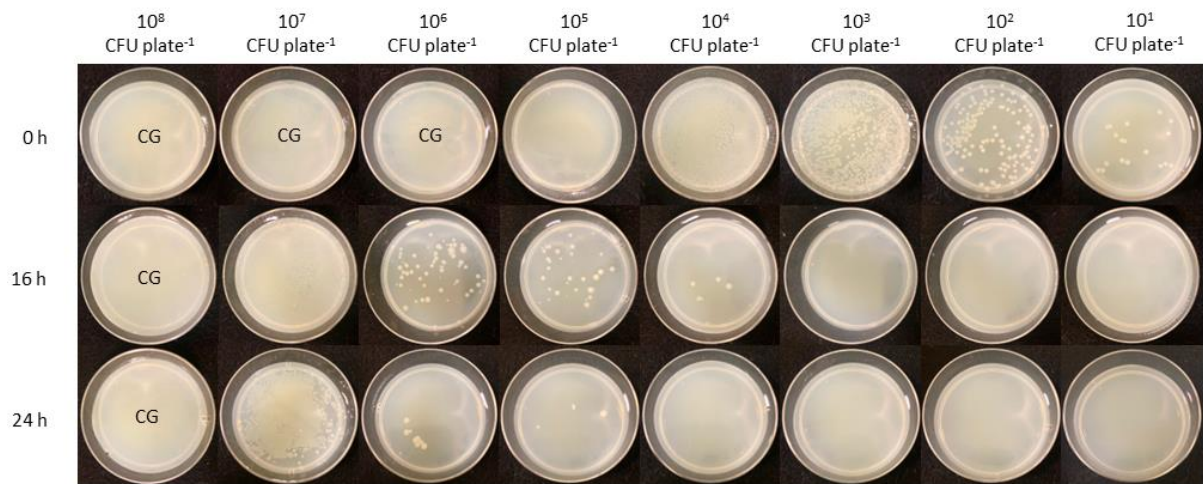


Fig. 2 Appearance of *K. pneumoniae* at $10^8 - 10^1$ CFU plate⁻¹, after exposure to 0.5 mWcm⁻² 405-nm light for 16 h and 24 h (28.8 and 43.4 Jcm⁻², respectively). CG represents plates with confluent growth of bacteria.

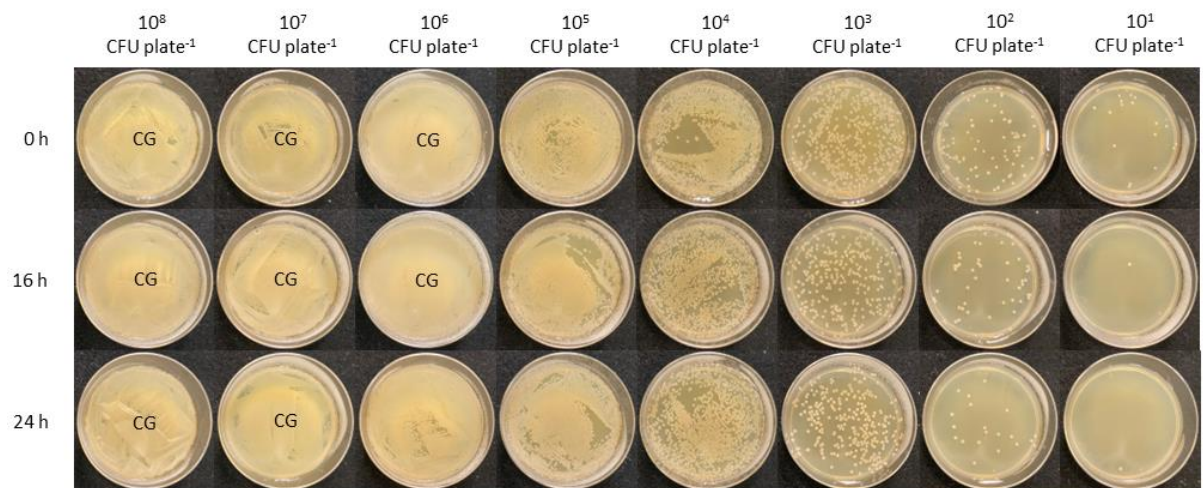


Fig. 3 Appearance of *A. baumannii* at $10^8 - 10^1$ CFU plate⁻¹, after exposure to 0.5 mWcm⁻² 405-nm light for 16 h and 24 h (28.8 and 43.4 Jcm⁻², respectively). CG represents plates with confluent growth of bacteria.

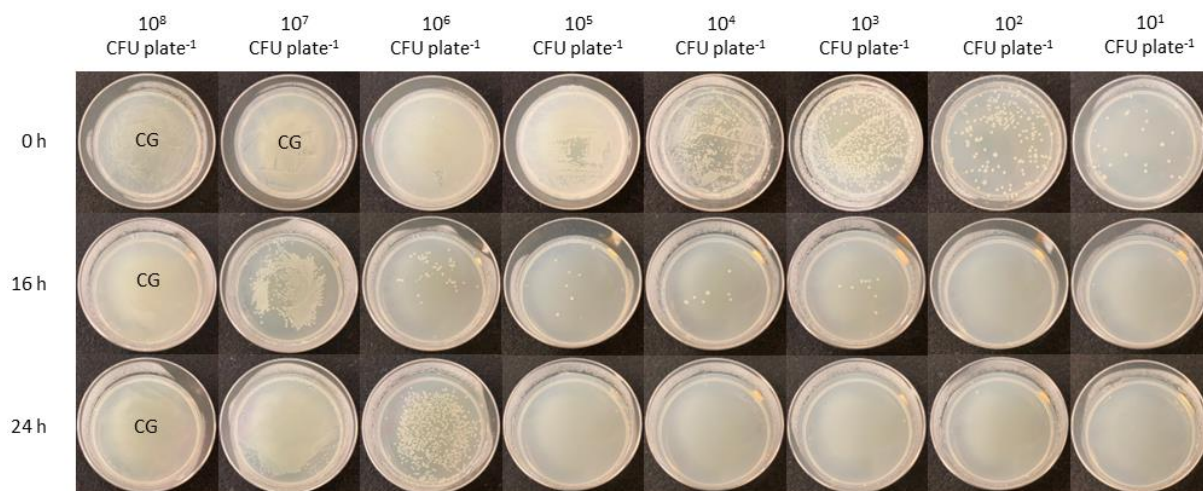


Fig. 4 Appearance of *E. cloacae* at $10^8 - 10^1$ CFU plate⁻¹, after exposure to 0.5 mWcm⁻² 405-nm light for 16 h and 24 h (28.8 and 43.4 Jcm⁻², respectively). CG represents plates with confluent growth of bacteria.