Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Bioinspired and Eco-Friendly High Efficacy Cinnamaldehyde Antibacterial Surfaces

(Supplementary Information)

Harrison J. Cox[a], Jing Li[a], Preety Saini[a], Joy. R. Paterson[b], Gary J. Sharples[b], and Jas Pal S. Badyal[a]*

[a] Department of Chemistry, Durham University, Durham DH1 3LE, England, UK

[b] Department of Biosciences, Durham University, Durham DH1 3LE, England, UK

* Corresponding author email: j.p.badyal@durham.ac.uk

1. FIGURES

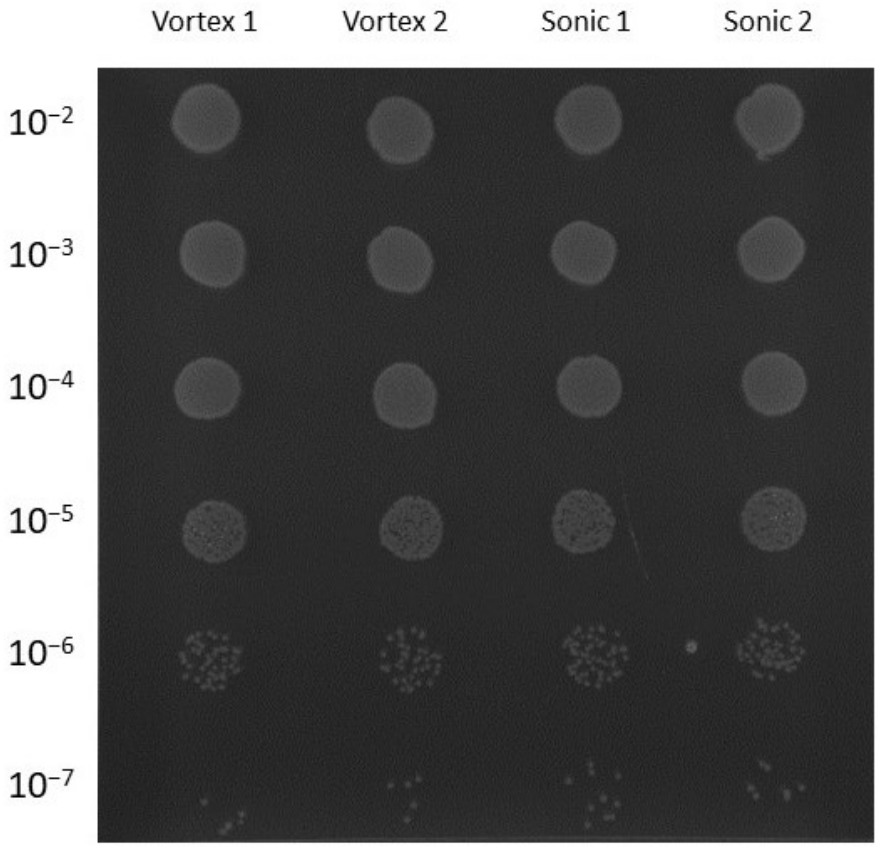

Figure S 1: Uncoated PET samples were used to create a 1:10 dilution series in Luria-Bertani broth from 10^{-2} to 10^{-7}. 10 µl of each dilution containing *E. coli* was applied onto a Luria-Bertani agar plate which was incubated overnight at 30°C. Cell counts at 10^{-6}: V1 = 32 (= 3.2 x 10^9 ml^{-1}), V2 = 37 (= 3.7 x 10^9 ml^{-1}), S1 = 40 (= 4.0 x 10^9 ml^{-1}), and S2 = 35 (= 3.5 x 10^9 ml^{-1}). Similar bacterial numbers were recovered from uncoated PET samples regardless of whether vortexing (V) or sonication (S) was used.

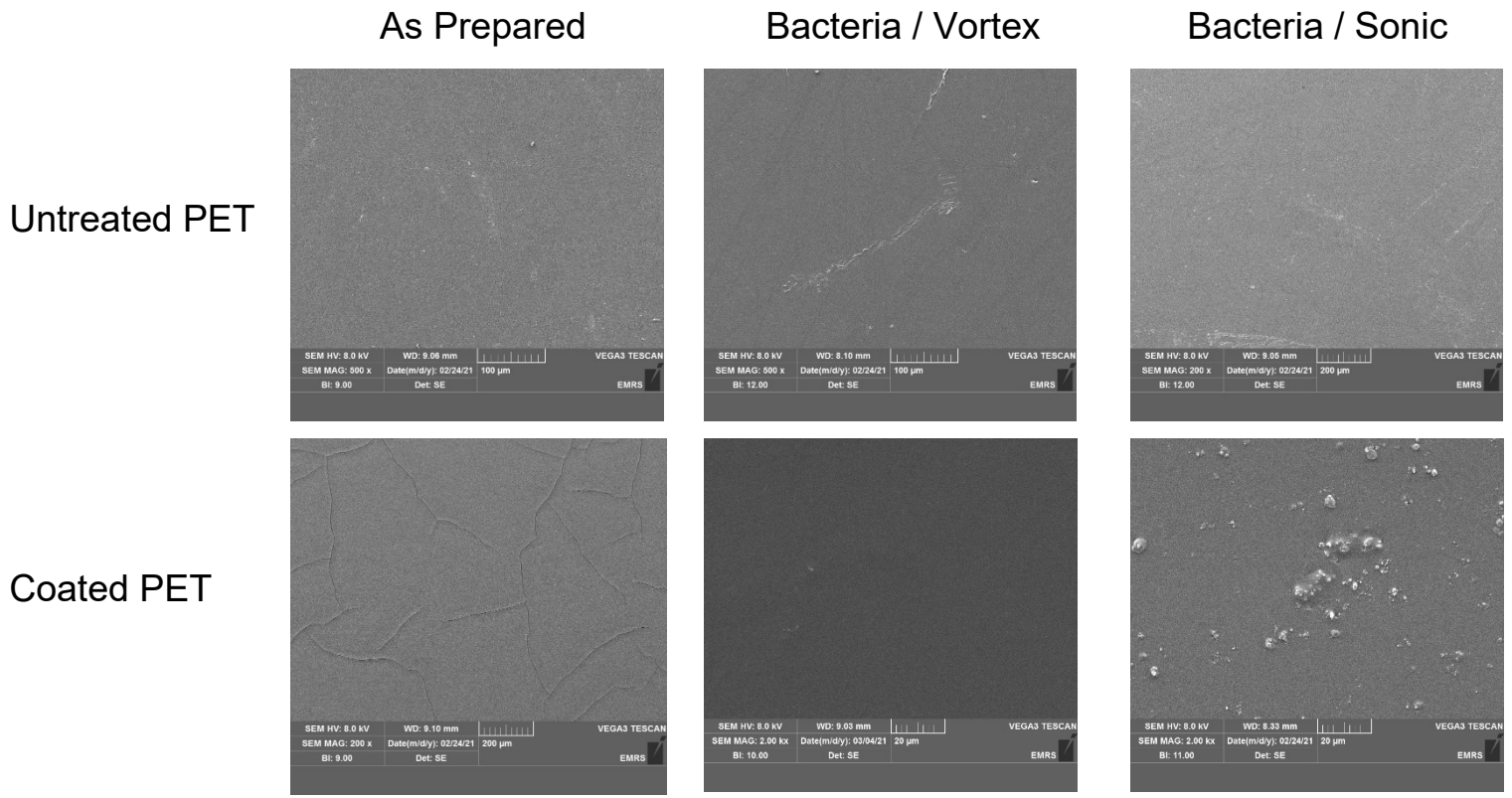

Figure S 2: Scanning electron microscopy (SEM) images of uncoated and polydopamine–cinnamaldehyde coated PET film surfaces: as prepared, after exposure of the *E. coli* culture and vortexing or sonication to remove any surface bound bacterial cells.

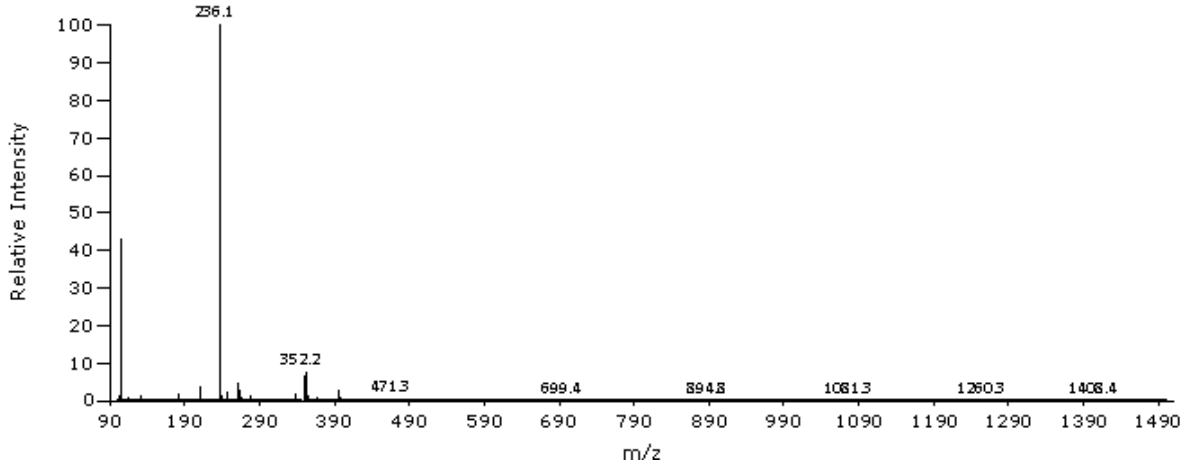

Figure S 3: Atmospheric pressure solids analysis probe ionisation (ASAP) mass spectrum of phenethylamine and cinnamaldehyde reaction product.

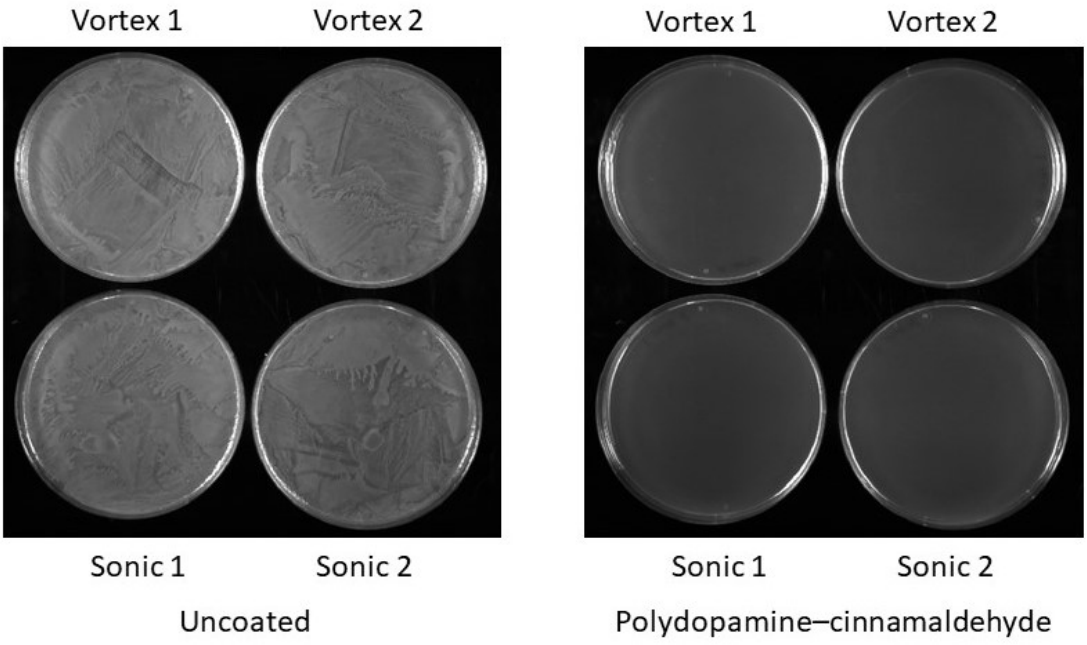

Figure S 4: After exposure of the *E. coli* solution to uncoated PET film or polydopamine–cinnamaldehyde coated PET film, 900 µL of sterile Luria-Bertani broth was added into each microtube containing the sample followed by either vortexing or sonication, the polydopamine–cinnamaldehyde coated PET film was removed, and 100 µl of each bacteria solution spread onto a Luria-Bertani agar plate, and incubated overnight at 30°C.

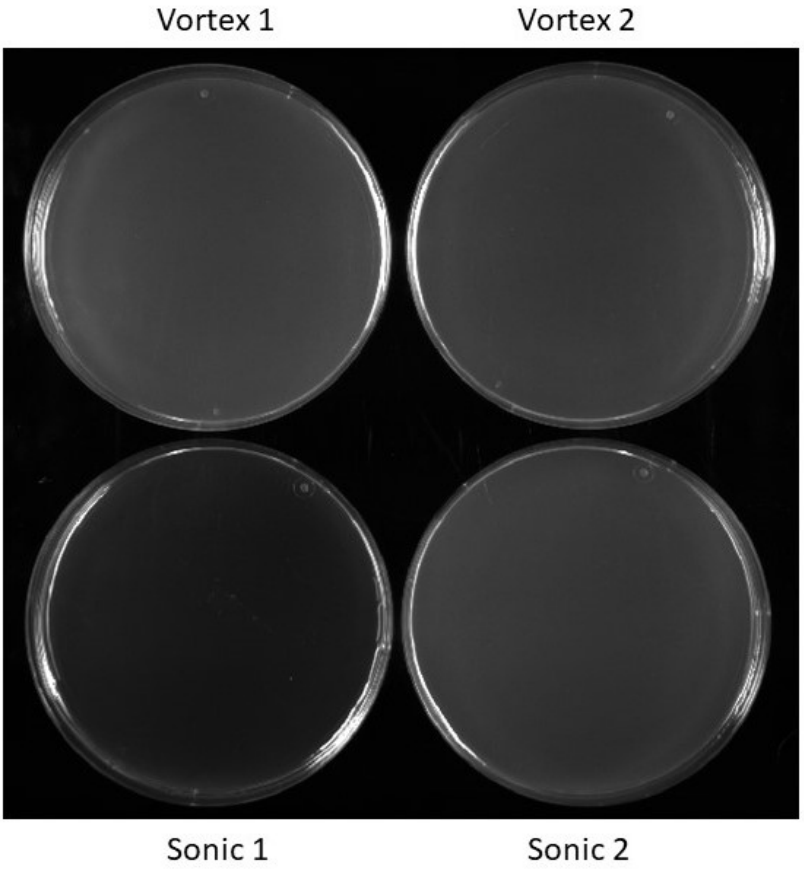

Figure S 5: After exposure of polydopamine–cinnamaldehyde coated PET film to *E. coli*, and then addition of 900 µL of sterile Luria-Bertani broth into the microtube containing sample followed by either vortexing or sonication, the polydopamine–cinnamaldehyde coated PET film was removed, and 900 µl of E. coli bacteria solution was centrifuged at 13,000 rpm for 2 min. The supernatant was discarded, and 100 µl of PBS was added and vortexed to recover any cells present. This 100 µl resuspension was then spread onto an Luria-Bertani agar plate, and incubated overnight at 30°C. No colonies were observed following incubation.