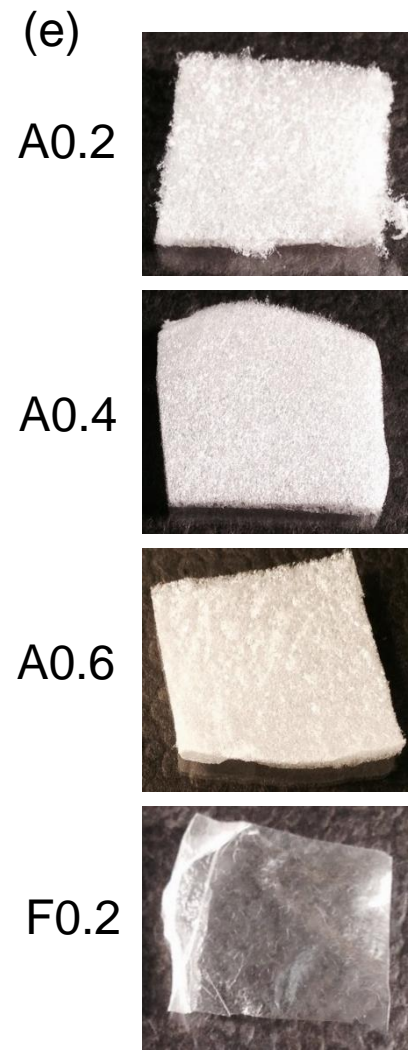
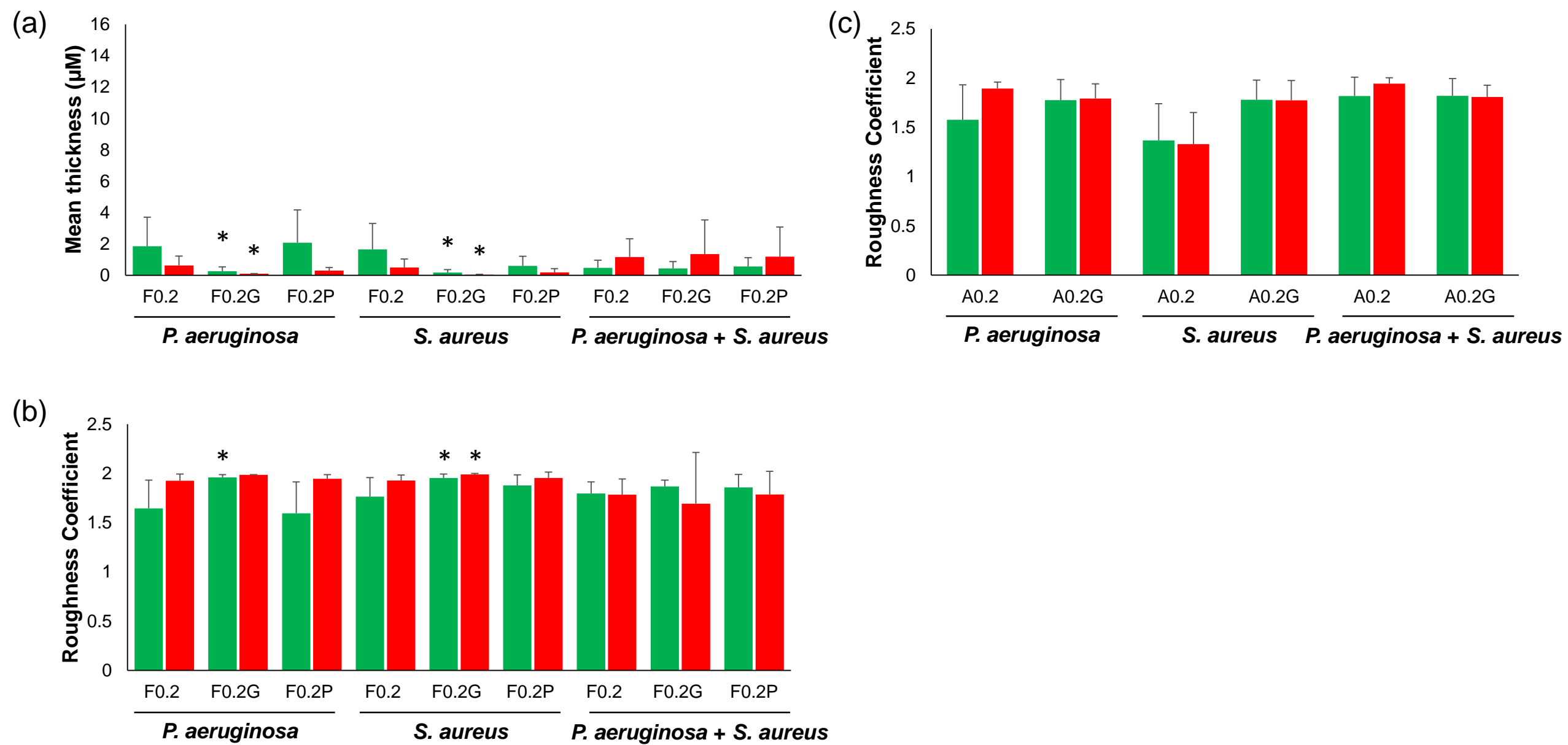


(d)

sample name	change in log <sub>10</sub> CFU/ml
A0.2	0.07 ± 0.004
A0.4	0.13 ± 0.005
A0.6	0.53 ± 0.008
F0.2	0 ± 0.016
AquaCel Ag <sup>®</sup>	4.65 ± 0.012 <sup>†</sup>



**Figure S1.** Effect of CNF dispersions and dried materials (aerogels and films) on growth of *S. aureus* 1061A: Growth curves of *S. aureus* in T3 CNF dispersions (0.2 %) in (a) MH broth, (b) Phosphate buffered saline (PBS), (c) sterile distilled water (n=3). (d) Log<sub>10</sub> reduction values of planktonic *S. aureus* 1061A incubated with CNF formulations (A0.2, A0.4, A0.6 or F0.2) for 24 h (n=3). <sup>†</sup>≥3 log<sub>10</sub> CFU/ml indicates bacteriocidal activity. (e) Images of the dried CNF materials: aerogels (A0.2, A0.4 and A0.6) and film (F0.2).



**Figure S2.** COMSTAT image analysis of LIVE/DEAD<sup>®</sup> staining of 24 h single and dual species biofilms grown on (a, b) 0.2% CNF films (Control F0.2, OligoG-coated F0.2G and PEG400 biocomposite F0.2P. (c) 0.2% CNF aerogels (Control A0.2 and Oligo-bio-nanocomposite A0.2G) showing (a) mean biofilm thickness. (b, c) roughness coefficients of LIVE (green) and DEAD (red) cells (\*significantly different compared to the equivalent no OligoG control; n=10 images each from n=3 replicates; P<0.05).