

Supplementary Material

1. Fluorescence microscopy images obtained through the concanavalin A assay

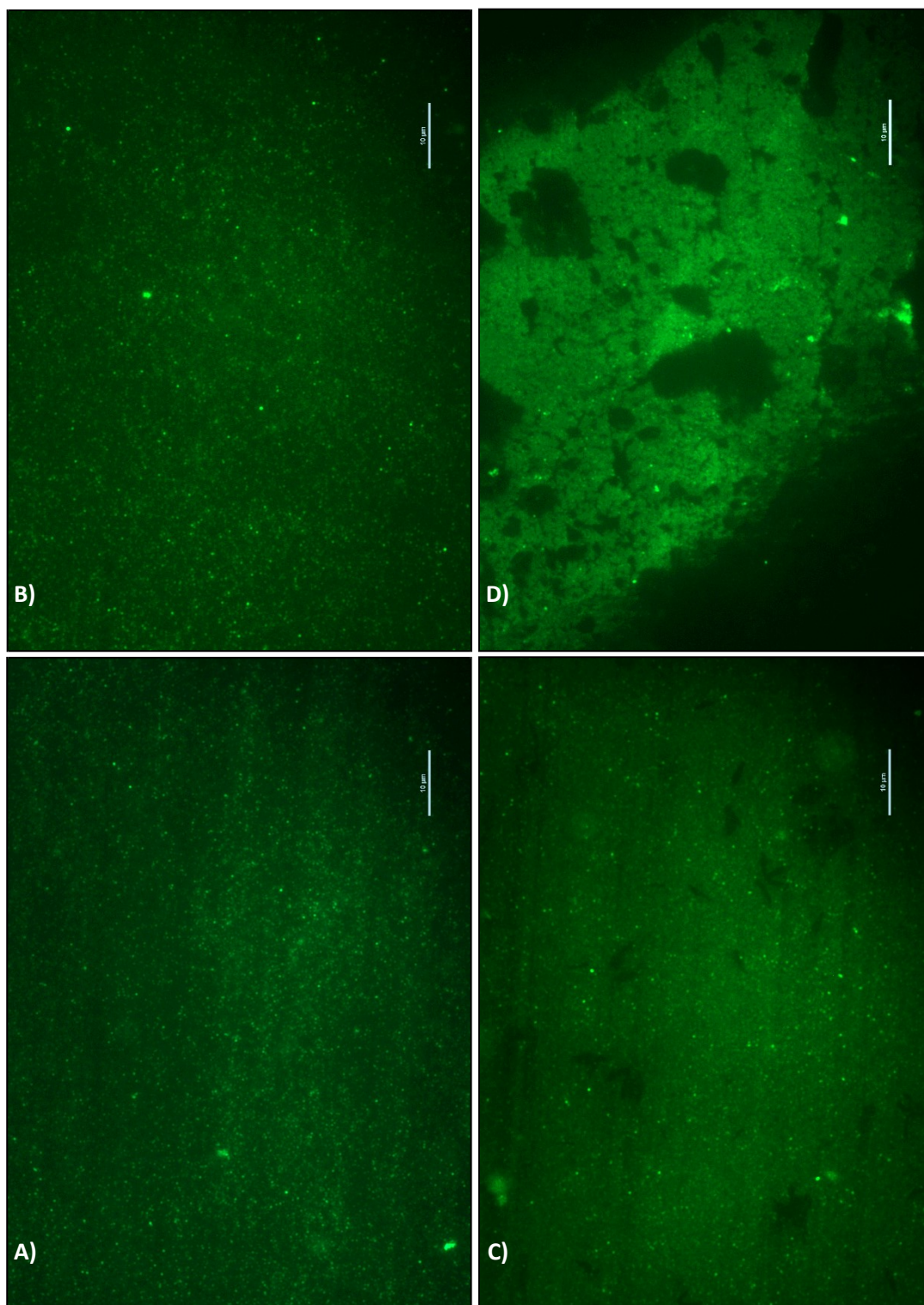


Figure S1 Rhodamine-conA staining of *E. coli* ATCC 25922 biofilm after 18h of incubation in the absence of DOCA-NH₂ (A), in the presence of DOCA-NH₂ at ½ MIC (B), at MIC (C) and 2xMIC (D). Scale bar = 10 µm. Amplification 1000x.

2. Characterization of the prepared material



Figure S2. Photo of PDMS coating control (left) and containing DOCA-NH₂ (right).

Infrared (IR) spectra were recorded in a KBr microplate in an FTIR spectrometer Nicolet iS10 from Thermo Scientific (U.S.A.) with Smart OMNI-Transmission accessory (Software OMNIC 8.3).

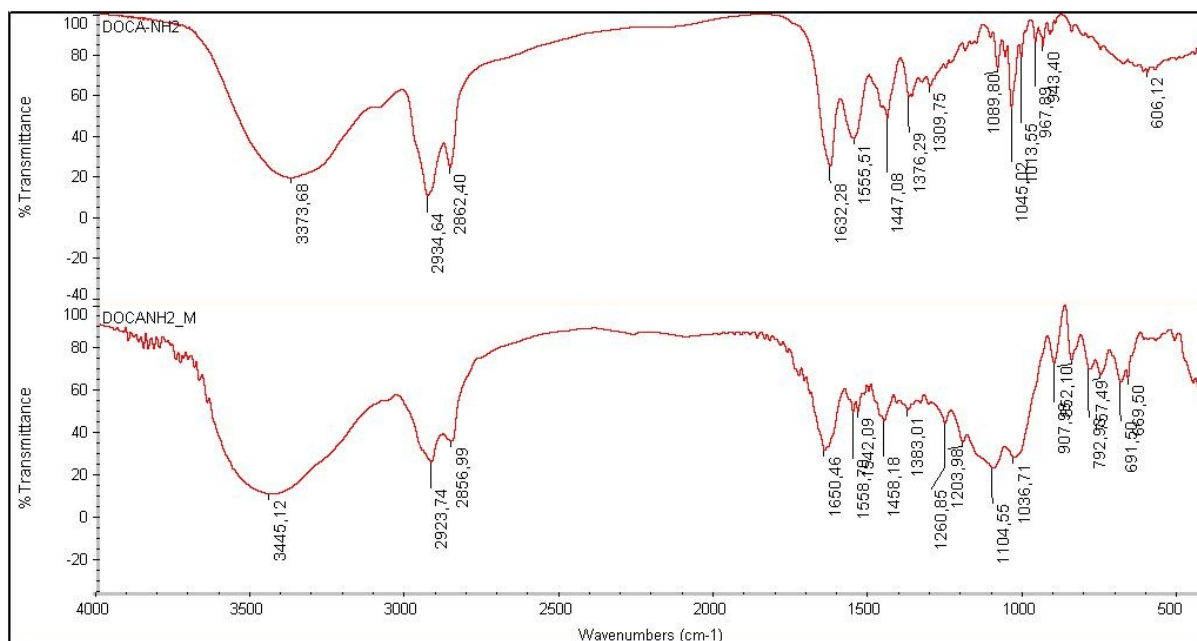


Figure S3. IR spectrum of DOCA-NH₂ and DOCA-NH₂ with conventional (3-glycidyloxypropyl)trimethoxysilane (GLYMO) epoxy silane crosslinker (DOCANH₂_M).

IR analysis was performed for DOCA-NH₂ and DOCA-NH₂ treated with GLYMO. The spectra show a band at 907 cm⁻¹ that can be attributed to the epoxy ring and the intense band at 1104 cm⁻¹ can be attributed to Si-O-CH₃ present in GLYMO structure [1]. These results corroborate the successful treatment of DOCA-NH₂ with GLYMO.

SEM Analysis of PDMS coating containing DOCA-NH₂

The surface morphology of the coatings samples was evaluated by scanning electron microscopy (SEM) using a (FEI QUANTA 400 FEG ESEM/EDAX Genesis X4M, [Hillsboro, Oregon, EUA](#), 2007) operating at 10kV. Prior to analysis, the coating samples were placed on a double-sided glue tape and covered with a fine Au/Pd film in a sputter coater (SPI-Module™ Sputter Coater, Structure Probe, Inc; West Chester, PA, USA), Samples were coated with Au/Pd for 80 sec. and with a 15mA current.

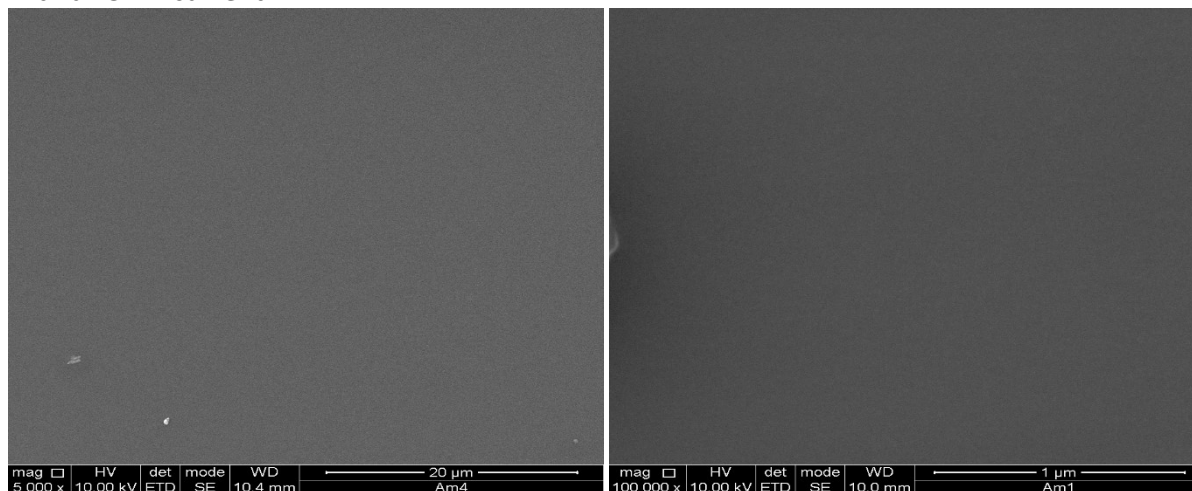


Figure S4. Representative SEM images of polydimethylsiloxane (PDMS)-based coatings: pristine PDMS coating (left) and containing DOCA-NH₂ (right).

SEM images of the PDMS-based coatings revealed very smooth surfaces, typical of a silicone-based polymeric matrix, with no visible defects [2-4]. Furthermore, the morphology of the PDMS coating containing DOCA-NH₂ showed no significant difference from the PDMS coating (control), evidencing that the incompatibility between the DOCA-NH₂ compound and the PDMS formulation was successfully overcome, allowing to provide an antimicrobial coating.

References:

- [1] J. L. Li, C. Wang, K. Y. Lu. *Polym. Bull.*, 2020, **77**, 3429–3442. <https://doi.org/10.1007/s00289-019-02931-8>.
- [2] E. A. Waddell, S. Sheeves, H. Carrel, C. Perry, B. A. Reid, J. McKee, *Applied Surface Science*, 2008, **17**, 5314-5318. <https://doi.org/10.1016/j.apsusc.2008.02.087>.
- [3] B. Mikolaszek, J. Kazlauske, A. Larsson, M. Sznitowska, *Polymers*, 2020, **12**, 1520. <https://doi.org/10.3390/polym12071520>
- [4] I. Keranov, T. G. Vladkova, M. Minchev, A. Kostadinova, G. Altankov, P. Dineff, *Journal of Applied Polymer Science*, 2008, **111**, 2637-2646. <https://doi.org/10.1002/app.29185>