

Supplementary

# **(1S,2S)-Cyclohexane-1,2-diamine-based organosilane fibres as a powerful tool against pathogenic bacteria**

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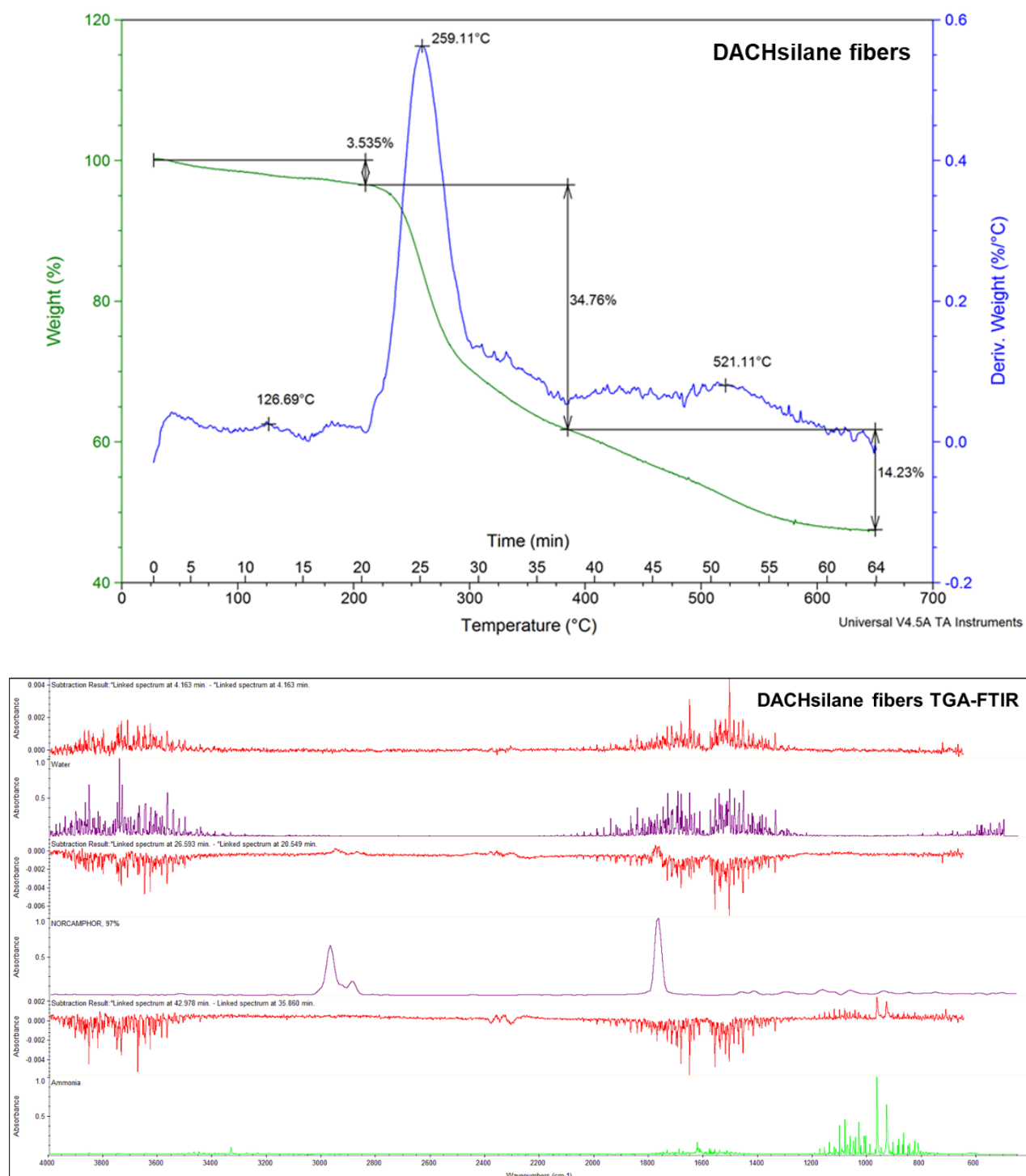
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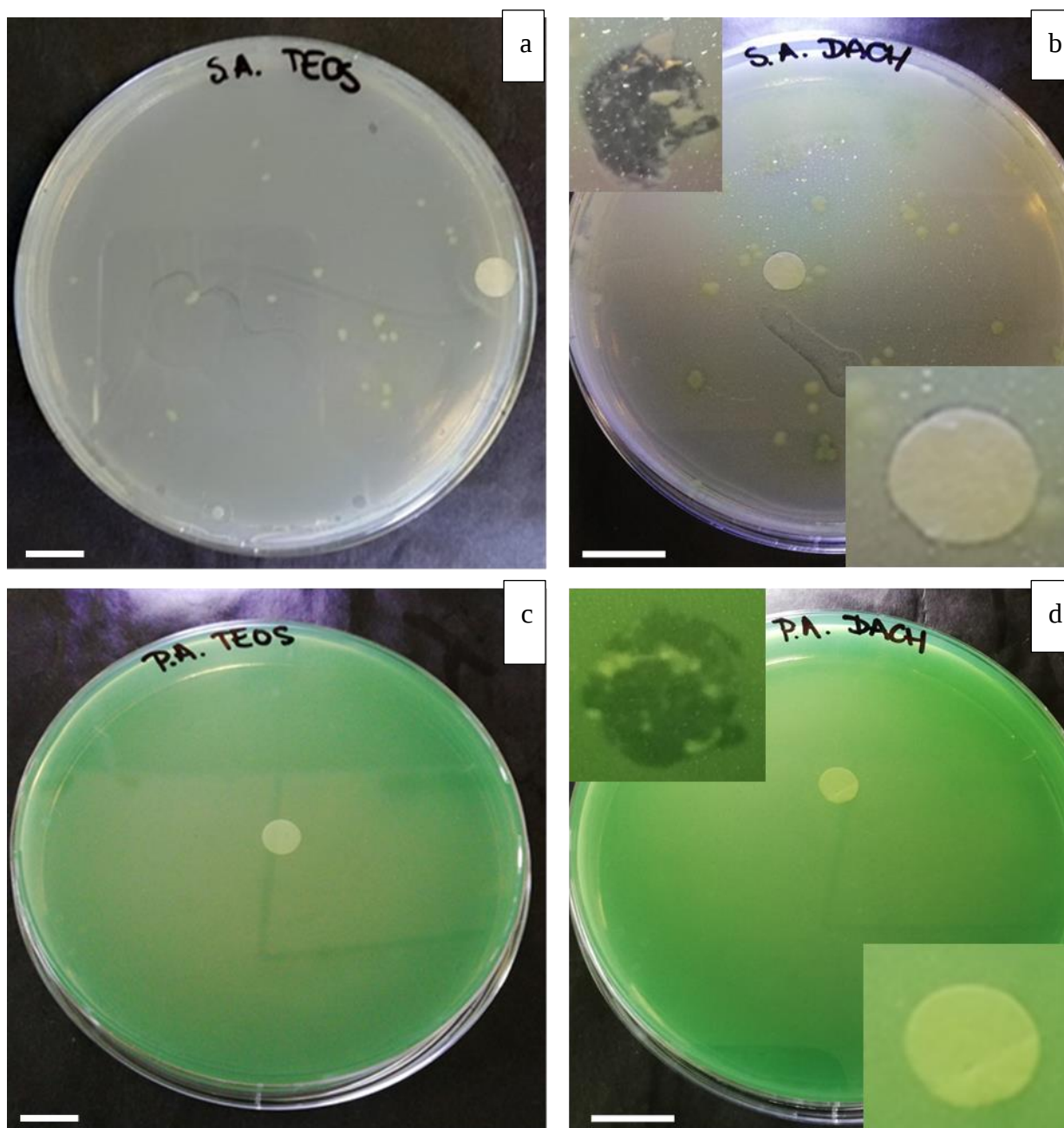
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**Figure S1.** Thermogravimetric analysis of the prepared hybrid DACHsilane fibers coupled with FTIR spectroscopy.

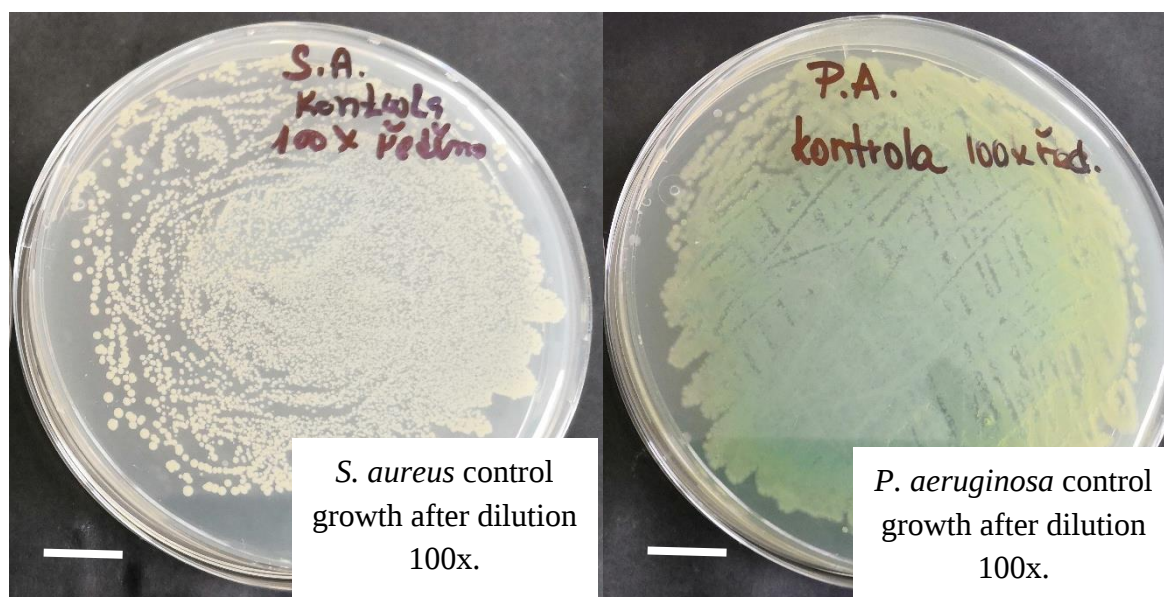


**Figure S2.** Qualitative test describing the inhibition zones for standard sample—pure SiO<sub>2</sub> fibers **a)** and hybrid DACHsilane fibers **b)** against *S. aureus*; pure SiO<sub>2</sub> fibers **c)** and hybrid DACHsilane fibers **d)** against *P. aeruginosa*. Scale bar 1cm.

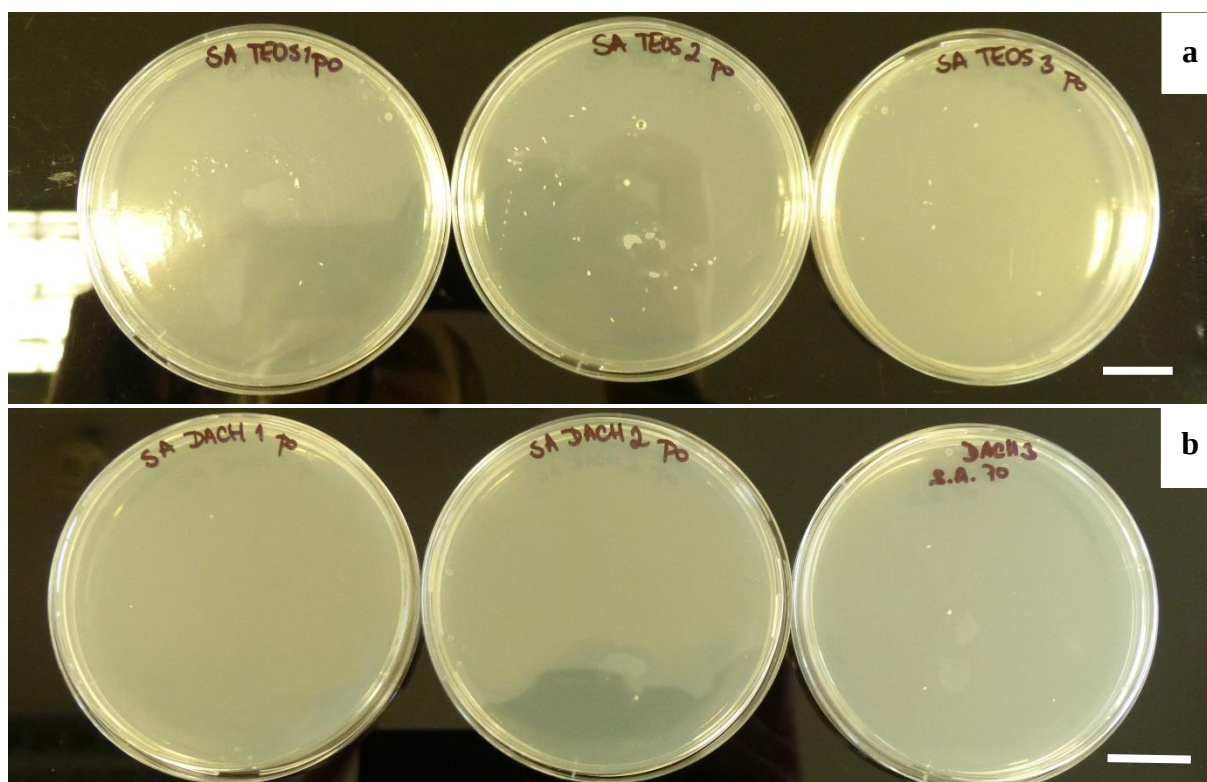
The inhibition of bacteria for both strains was observed below the hybrid DACHsilane fibres (inset images **Figure S2b,d** on the left sides) Moreover, the DACHsilane fibres showed a halo zone hint around the sample in the case of *S. aureus* (**Figure S2b**—inset image on the right).

**Table S1.** Antibacterial activity of the tested fibrous samples against *Staphylococcus aureus* and *Pseudomonas aeruginosa*.

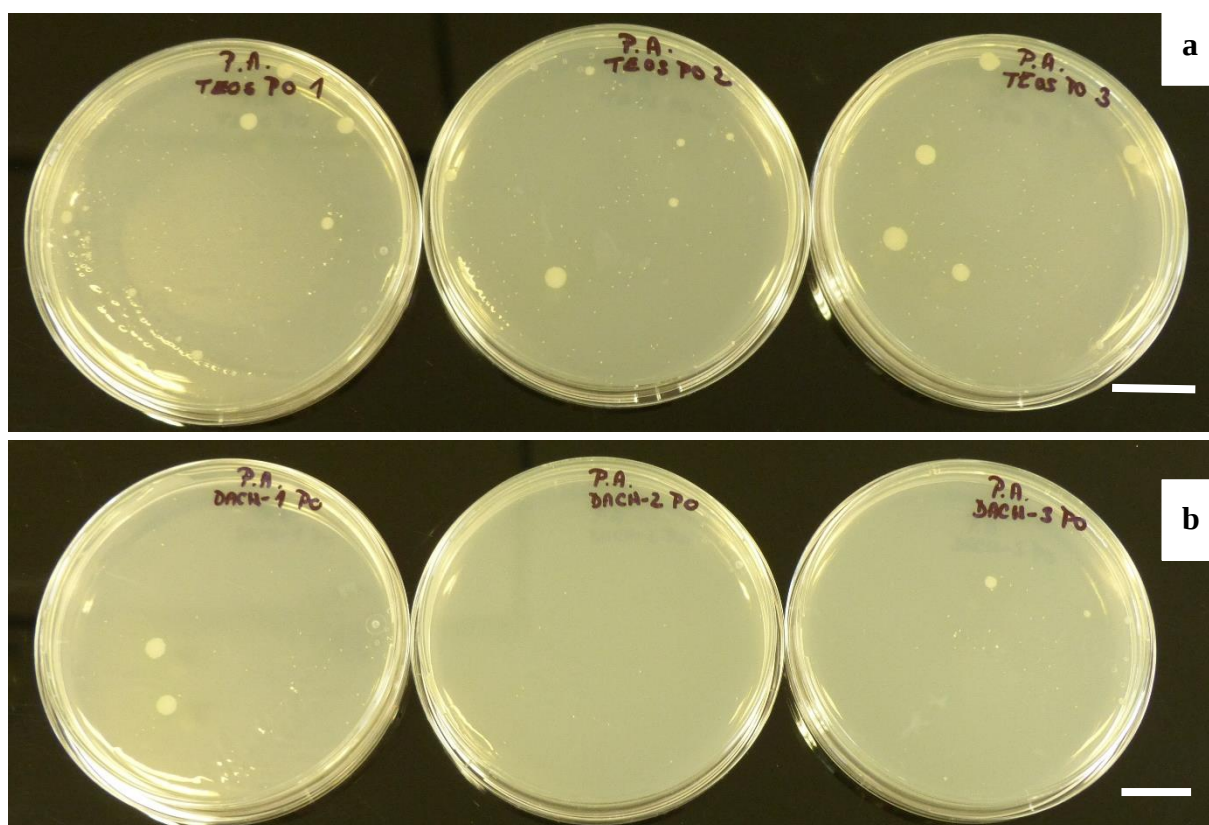
| Staphylococcus aureus<br>CFU/ mL |                  |               | Pseudomonas aeruginosa<br>CFU/ mL |                  |               |
|----------------------------------|------------------|---------------|-----------------------------------|------------------|---------------|
| Control                          | Inorganic fibers | Hybrid fibers | Control                           | Inorganic fibers | Hybrid fibers |
| >1000                            |                  |               | >1000                             |                  |               |
| 1                                | 5                | 0             |                                   | 132              | 30            |
| 2                                | 29               | 1             |                                   | 156              | 6             |
| 3                                | 8                | 3             |                                   | 112              | 17            |



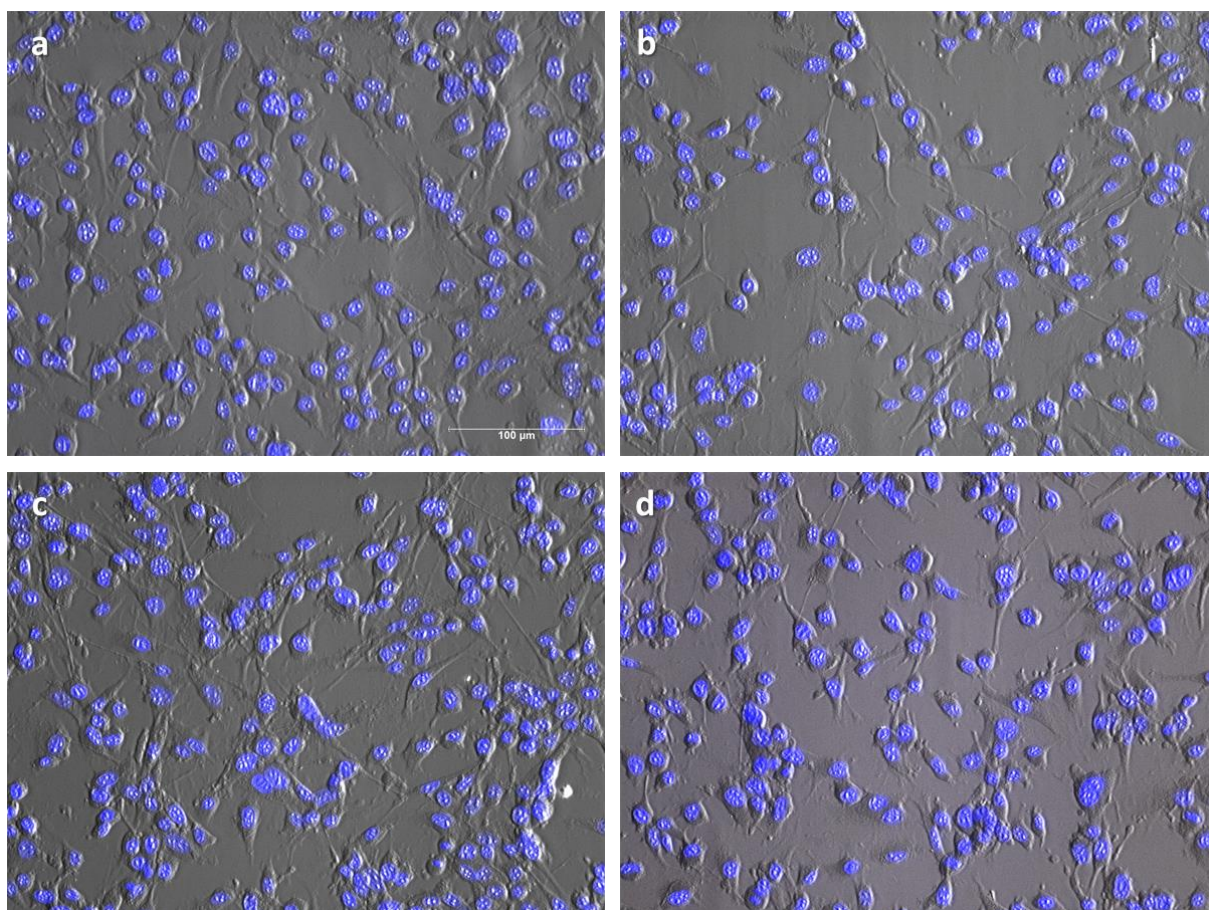
**Figure S3.** Control related to the bacterial cell growth of *Staphylococcus aureus* (S.A.) and *Pseudomonas aeruginosa* (P.A.). Both bacterial strains were diluted 100 times. Scale bar 1 cm.



**Figure S4.** The bacterial cell growth of *Staphylococcus aureus* (S.A.) on the inorganic fiber sample **a)** and on the hybrid fiber sample **b)**. Scale bar 1 cm.



**Figure S5.** The bacterial cell growth of *Pseudomonas aeruginosa* (P.A.) on the inorganic fiber sample **a)** and on the hybrid fiber sample **b)**. Scale bar 1 cm.



**Figure S6.** The 3T3-A31 cells spindle-like morphology after 24 hours exposure to the DACHsilane fibres extracts (a) 0 µg/mL (CC), (b) 125 µg/mL, (c) 250 µg/mL and (d) 500 µg/mL Merge of modular contrast vizualization and nucleus staining (DAPI) (Leica DMI8, obj. 20×). Scale bar 100 µm.



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