

Electronic Supplementary Information (ESI)

Effective Harmful Organism Management I: Fabrication of Facile and Robust Superhydrophobic Coating on Fabric

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Section 1. Robustness Test Set Up

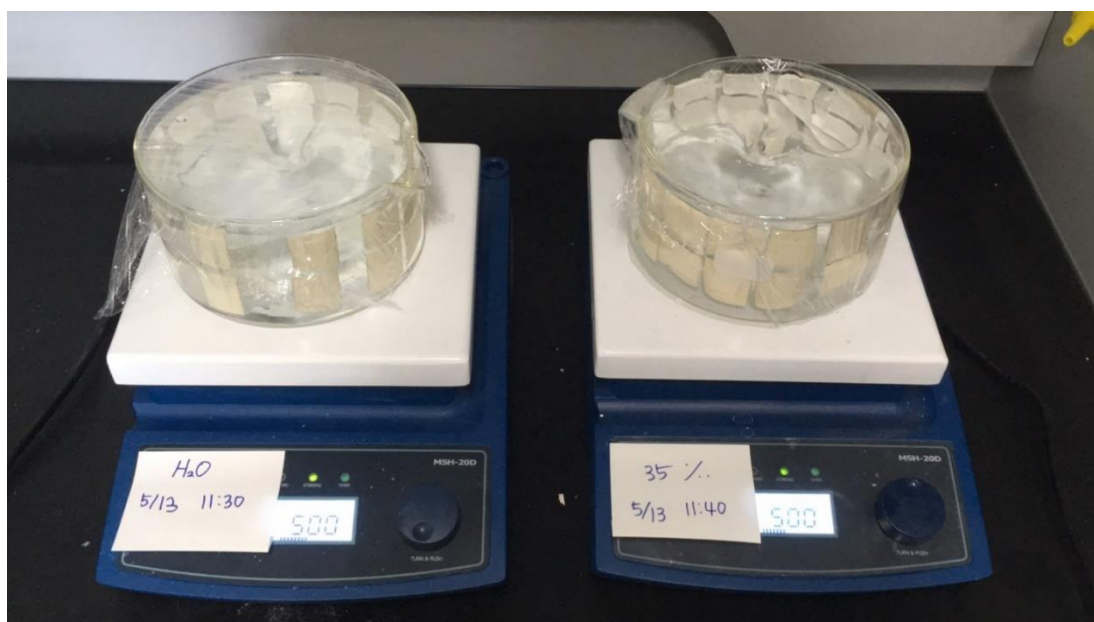


Figure S1. Robustness evaluation of the superhydrophobic surfaces: (left) the surfaces immersed in a D.I. water bath and (right) the surfaces immersed in a salted water bath (35 ppt).

Shear stress calculation:

The shear stress could be calculated with some assumptions: (1) the stir bar used to generate rotation frequency is cylindrical, (2) the salty water is pure water, and (3) the samples are equally distanced from the stir bar. The shear rate was calculated by the equation: $\dot{\gamma} \approx R\omega/d$, where $\dot{\gamma}$, R , ω , and d is shear rate, radius of the stir bar, and rotation frequency, respectively. The shear rate calculated is around 37.4 s^{-1} , and the resultant shear stress is around $8.9 \times 10^{-4} \text{ Pa}$.

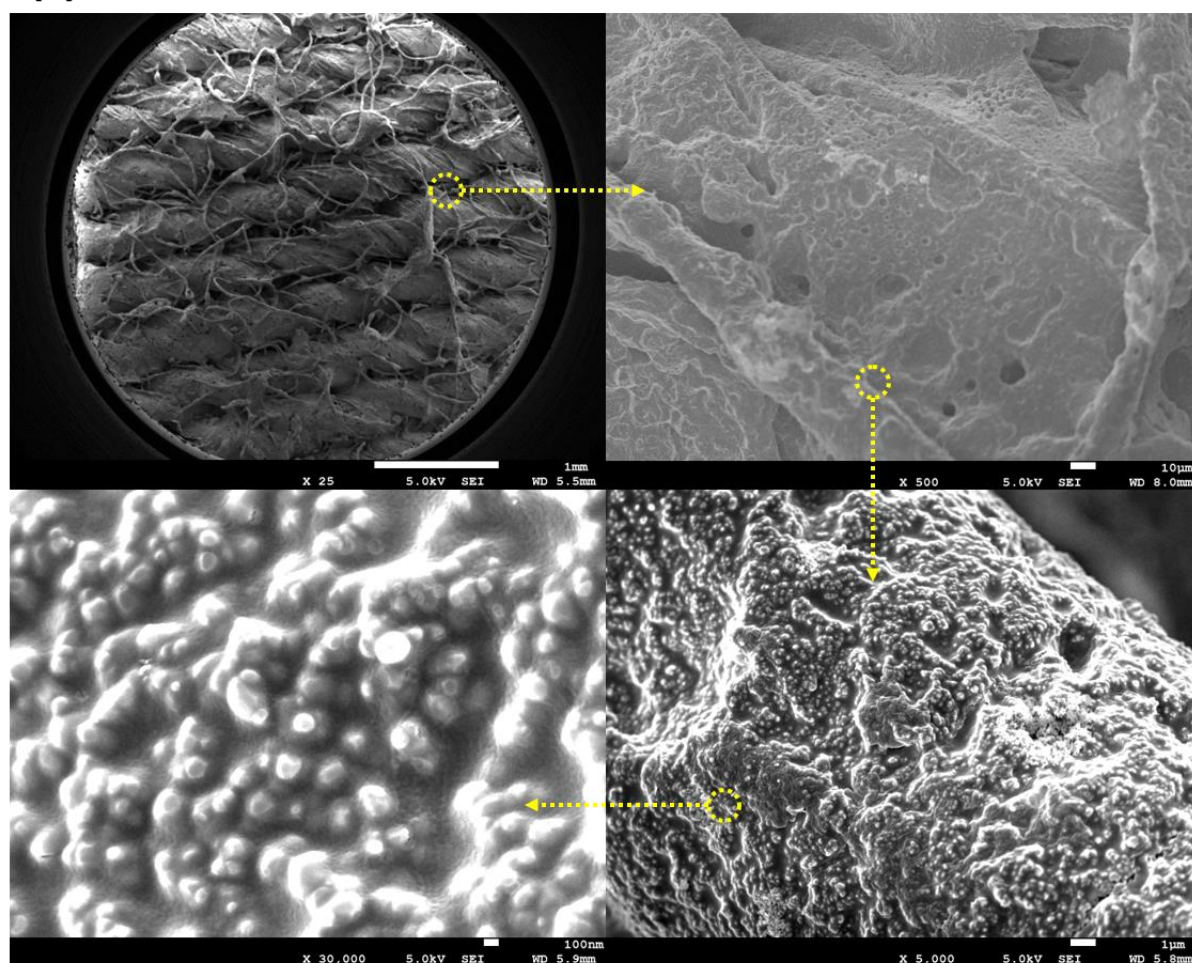
Section 2. Optical Image of the Coating Material Solution



Figure S2. Optical image of the coating material solution with white color.

Section 3. SEM Images of TiO₂-epoxy nanocomposite on Fabric

(a)



(b)

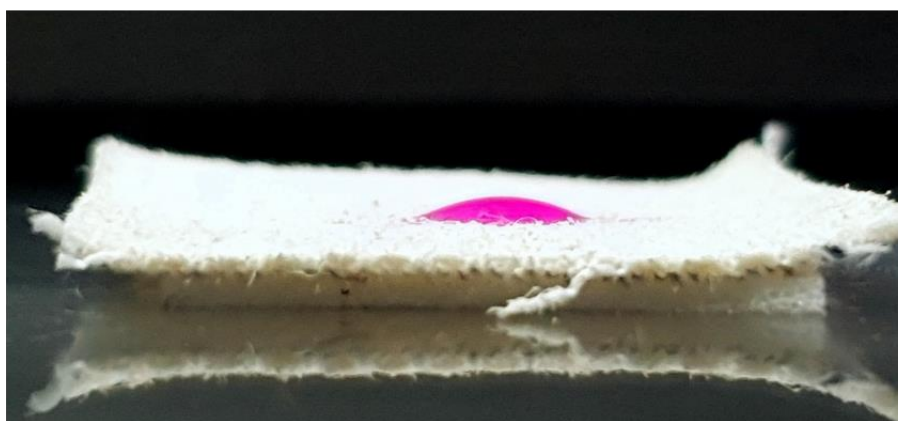
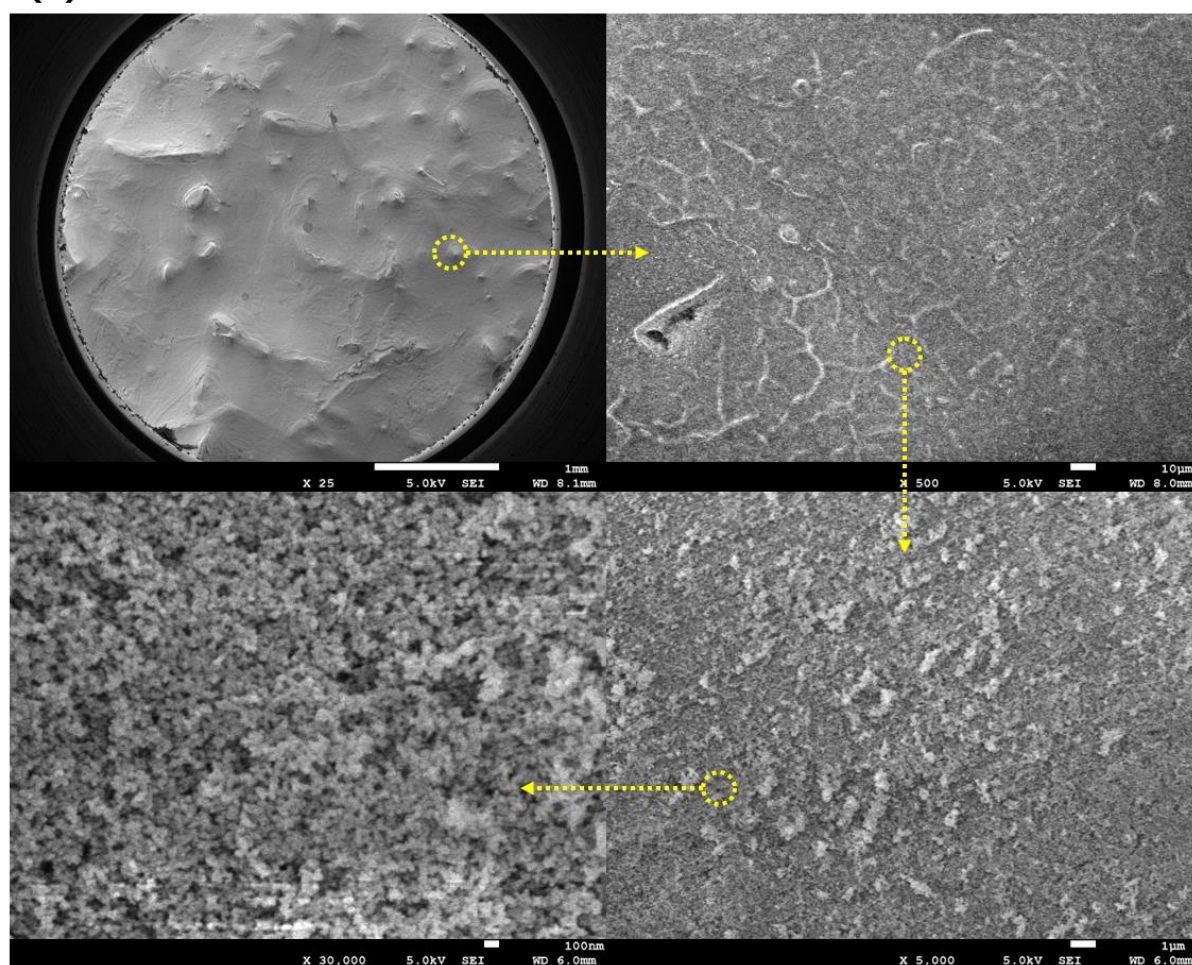


Figure S3. (a) SEM images of TiO₂-epoxy nanocomposite on fabric with different magnification and (b) optical image of water droplet on TiO₂-epoxy nanocomposite on fabric.

Section 4. SEM Images of FC-silane SiO₂ NPs / epoxy resin on Fabric

(a)



(b)



Figure S4. (a) SEM images of FC-silane SiO₂ NPs / epoxy resin on fabric with different magnification and (b) flexibility test of FC-silane SiO₂ NPs / epoxy resin sample.

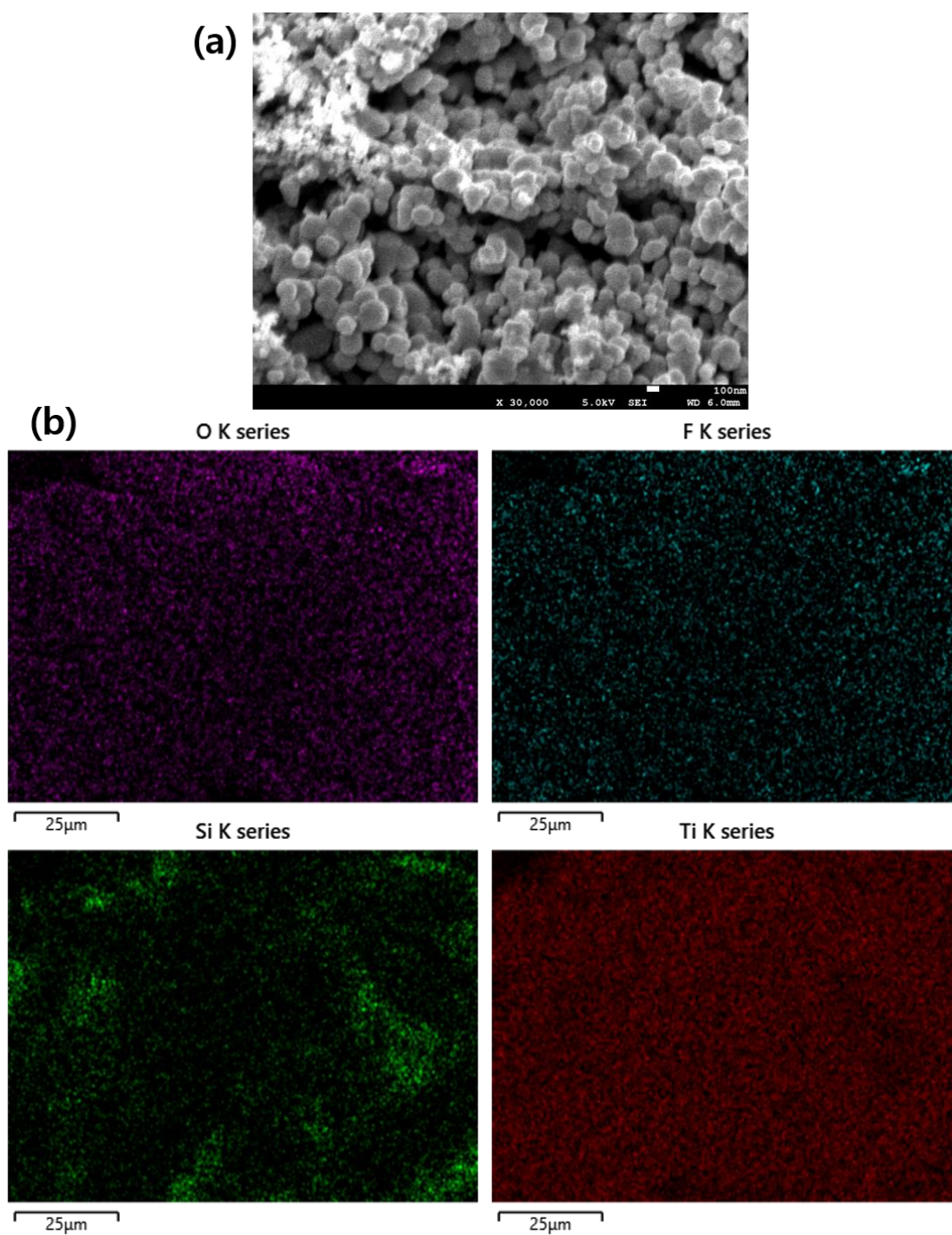
Section 5. SEM and EDS Images of the Superhydrophobic Surface after the Robustness Test

Figure S5. (a) SEM images of the superhydrophobic surface and (b) EDS analysis for elemental mapping of oxygen, fluorine, silicon, and titanium.