**Supporting information for**

Construction of Reinforced Self-Cleaning and Efficient Photothermal PDMS@GDY@Cu Sponges toward Anticorrosion and Antibacterial Applications

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**Table S1** Each component in the studied samples.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Cu (wt%) | GDY (wt%) | PDMS (wt%) |
| Cu | 100 ± 0 | 0 | 0 |
| PDMS@Cu | 78.4 ± 2.1 | 0 | 21.7 ± 2.1 |
| GDY@Cu-1 | 93.8 ± 0.5 | 6.2 ± 0.5 | 0 |
| GDY@Cu-2 | 87.2 ± 0.2 | 12.8 ± 0.2 | 0 |
| PDMS@GDY@Cu-1 | 75.4 ± 0.3 | 5.0 ± 0.5 | 19.6 ± 0.8 |
| PDMS@GDY@Cu-2 | 71.9 ± 0.1 | 10.6 ± 0.2 | 17.6 ± 0.1 |



**Figure S1.** Wavelength of the xenon short arc lamp solar simulator.

图片包含 男人, 躺, 窗帘, 床

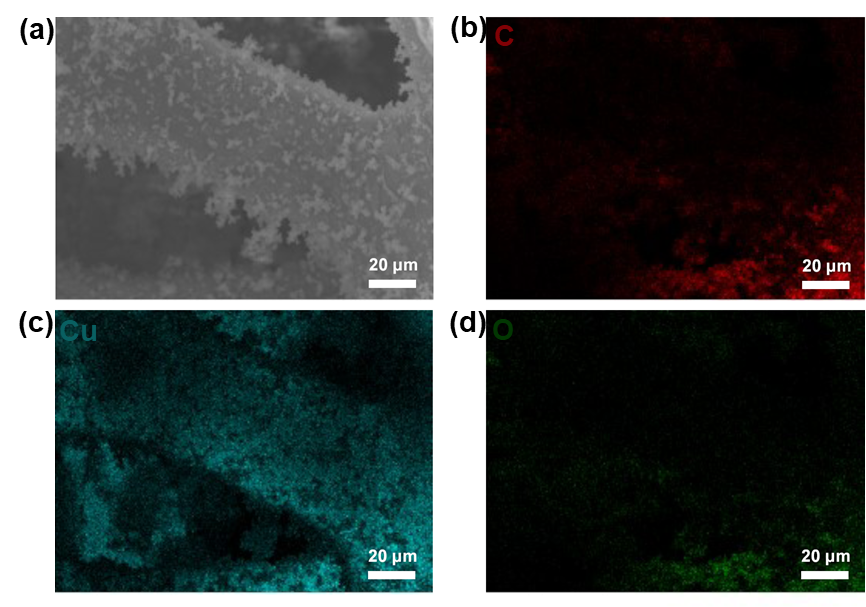
描述已自动生成

**Figure S2.** SEM image of the pristine Cu sponge.

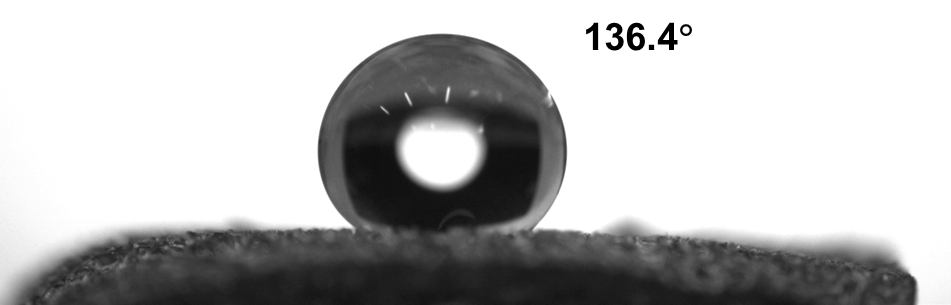
图片包含 游戏机

描述已自动生成

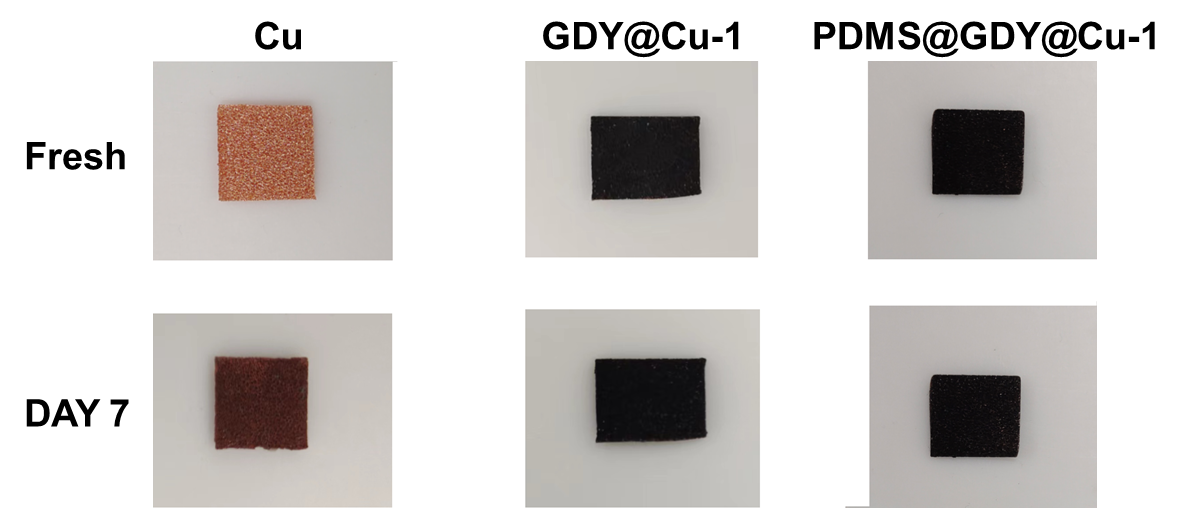
**Figure S3.** SEM image of the GDY@Cu-1.



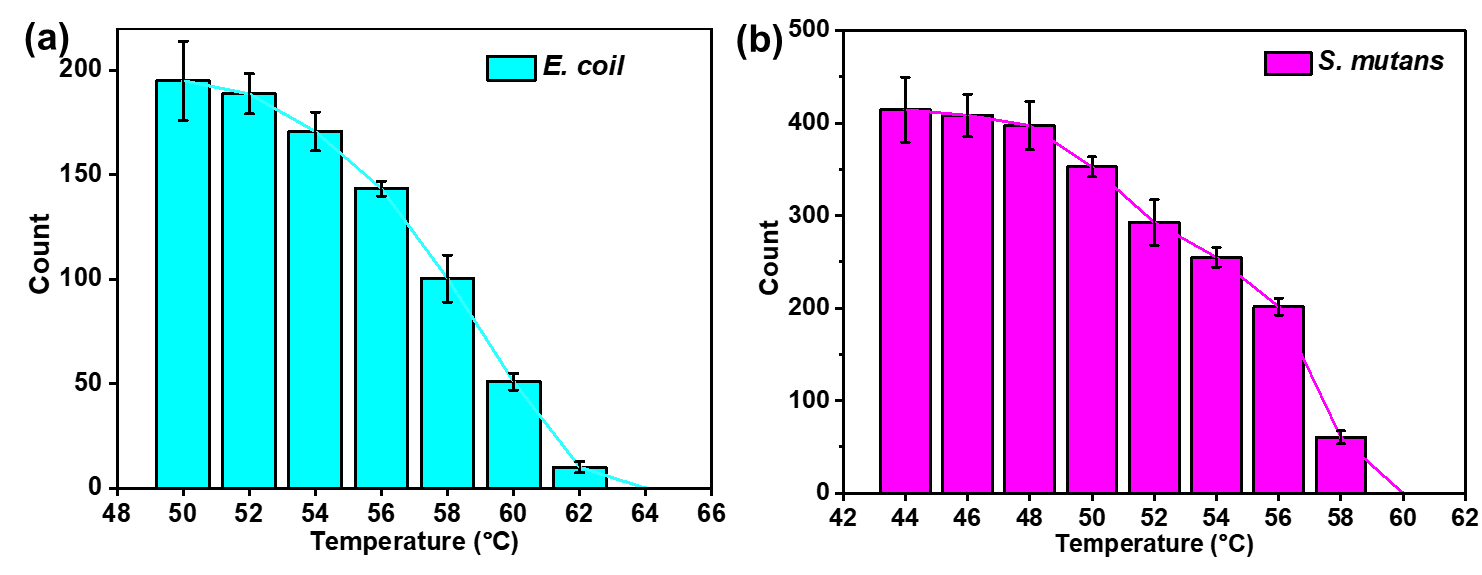
**Figure S4**. (a) SEM image of the GDY@Cu-2 and EDS mapping images of (b) C, (c) Cu, and (d) O elements.



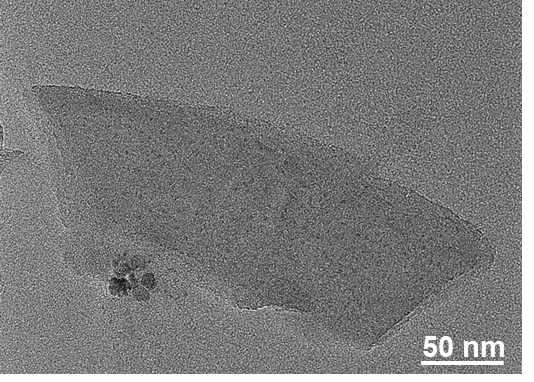
**Figure S5**. Wettability of the PDMS@Cu-1 sponge.



**Figure S6**. Photographs of the samples before and after 7-day EIS characterization.



**Figure S7**. Antibacterial activity against (a) *E. coil* and (b) *S. mutans* at different temperatures.



**Figure S8**. TEM image of the GDY obtained by the sonication of PDMS@GDY@Cu-1 after two-week antibacterial experiment.