Supplementary Materials

"Fluorinated-Triazole Modified ZnO and Its Application in Marine Antifouling" by Yang et al.

1. Confirmation of the synthesized compounds - ^{13}C NMR Spectrum

Figure S1 shows the liquid ^{13}C NMR of triazole fuoroaromatic hydrocarbons (TRF), and figure S2 shows the solid ^{13}C NMR of ZnO-APTES-TRF. Positions 2 and 3 in Figure S1 correspond to positions 2 and 3 in Figure S2, proving the triazole ring's successful synthesis on the ZnO surface. Positions 5, 6, 7, and 8 in Figure S1 correspond to positions 5, 6, 7, and 8 in Figure S2, proving that fluoroaromatic hydrocarbons are successfully grafted. Thus, the triazole fuoroaromatic hydrocarbons successfully modified the surface of ZnO to obtain ZnO-APTES-TRF.

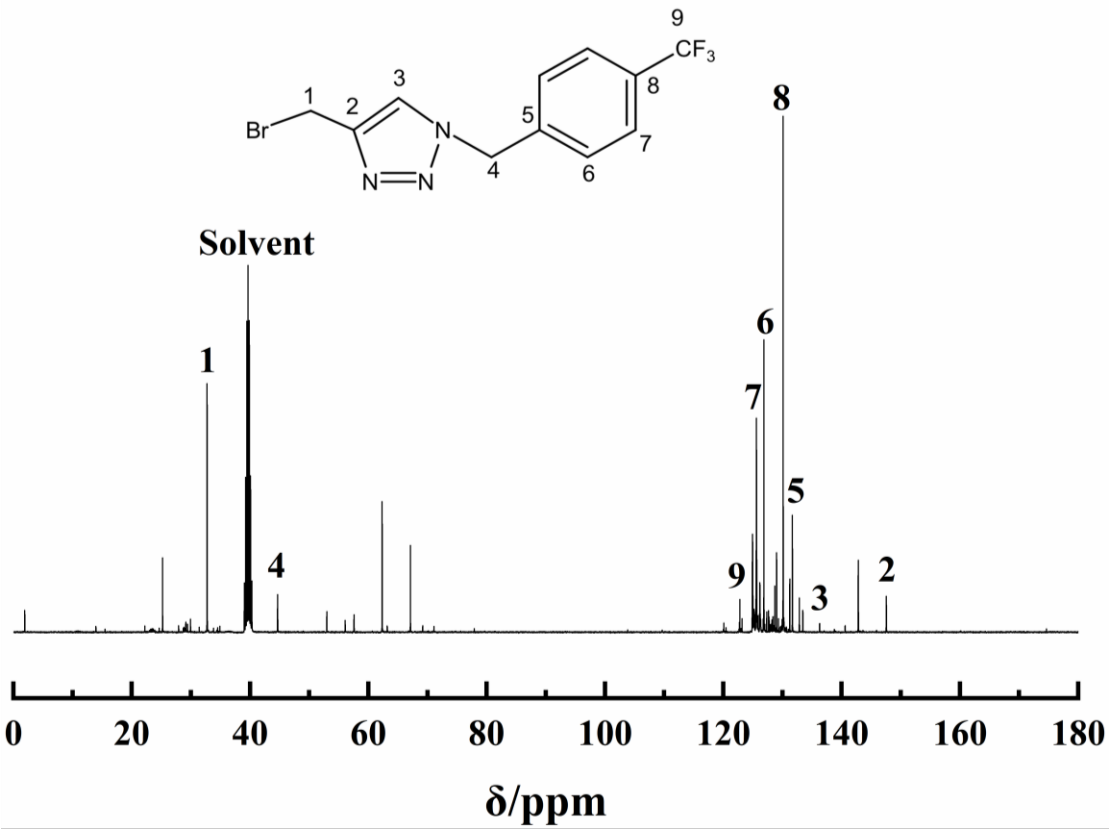

Figure S1. Liquid nuclear magnetic resonance carbon spectrum (^{13}C NMR) of 1,2,3-triazole cyclohexane fluoroaromatic hydrocarbons (TRF).

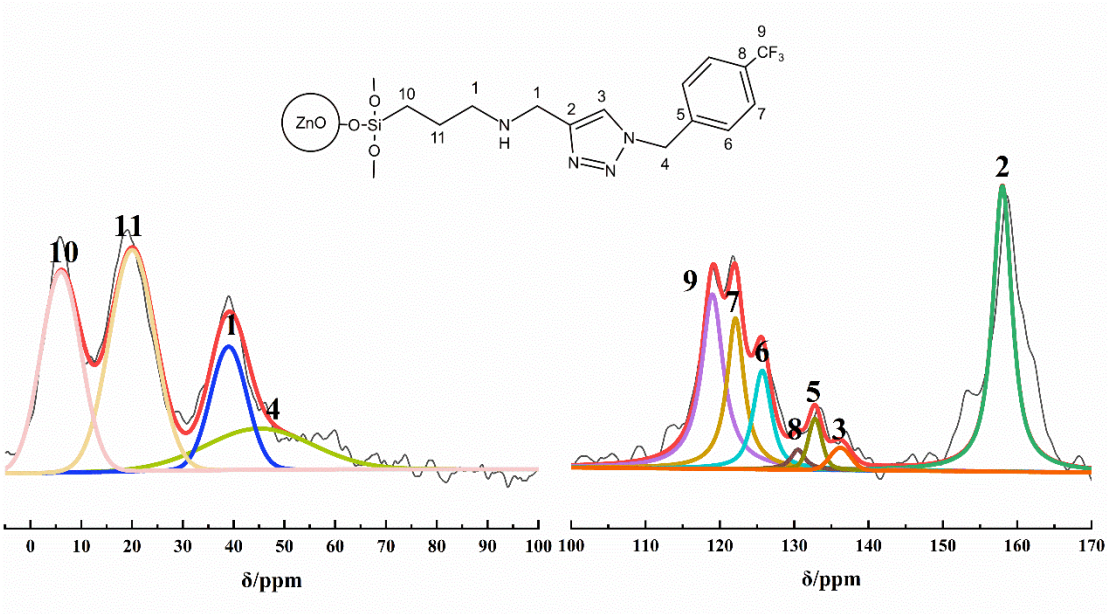

Figure S2. Solid state nuclear magnetic resonance carbon spectrum (^{13}C NMR) of ZnO-APTES-TRF

2. The re-experiment of fluorescent bacteria experiment

The results of the second dead bacteria fluorescence staining experiment of the composite coating are shown in Figure S3. As shown in Figure S3, the C4 surface shows the most red fluorescent dead bacteria cell spots, and the C0 surface shows the least. The red dead bacteria area on the C3 surface is less than that of the C4, which proves again that the triazole ring has an excellent antibacterial performance. The composite coatings (ZA) containing ZnO-APTES-TRF showed potent inhibition against three kinds of bacteria, and the results are consistent with the antibacterial effect of the coating in the paper.

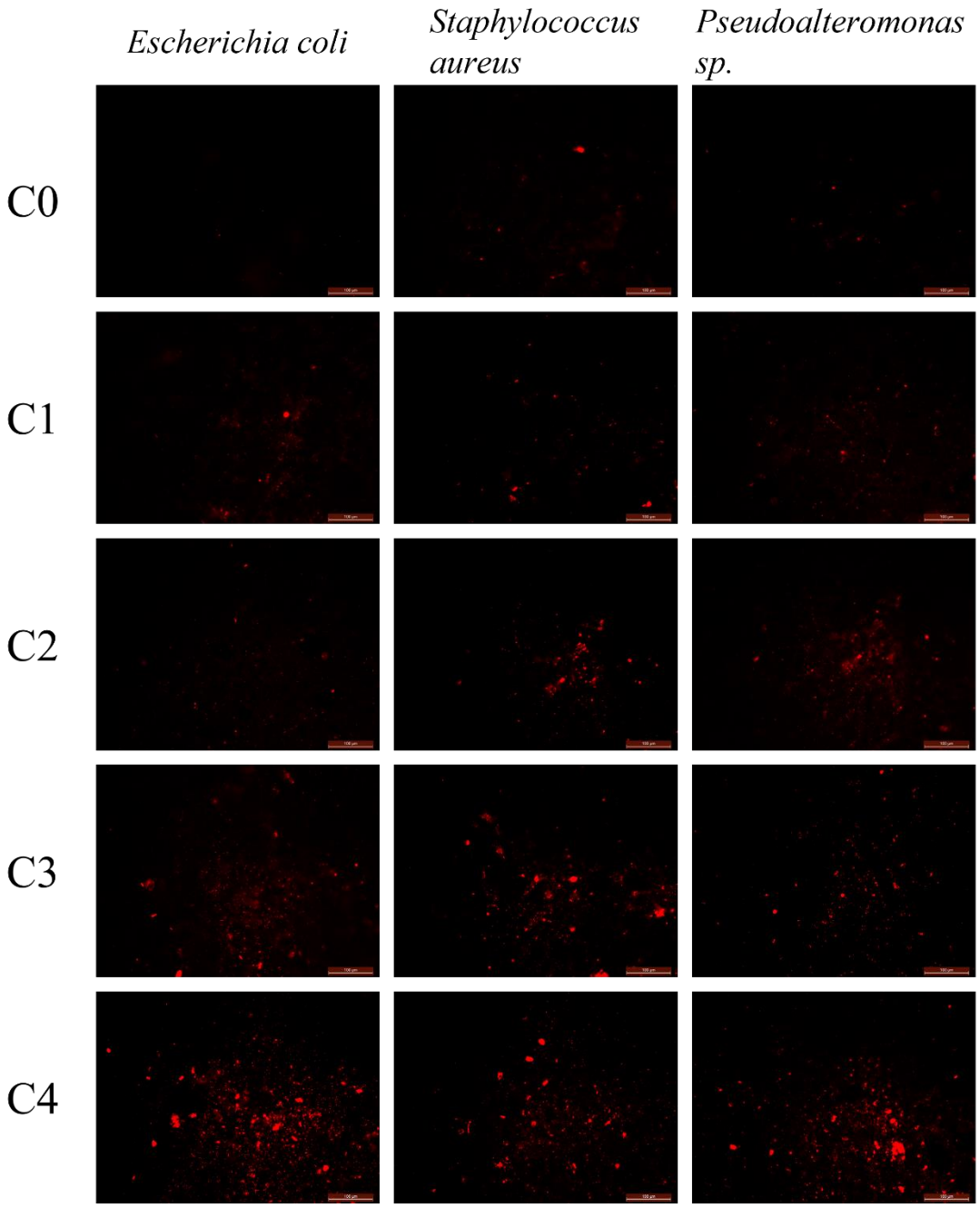

Figure S3. Re-experimental diagram of fluorescent staining of dead cells of composite coating. (C0: Pure ZA coating; C1: ZnO/ZA coating; C2: ZnO-APTES/ZA coating; C3: ZnO-APTES-F/ZA coating; C4: ZnO-APTES-TRF/ZA coating)