

**Functionalized Collagen-based Sponge Dressing Integrating Negative Pressure  
Wound Therapy and Photothermal Antibacterial Treatment for Advanced Wound  
Management**

Jiaqi Zhou<sup>a</sup>, Jingjing Yu<sup>b</sup>, Tianshuo Hu<sup>a</sup>, Jingyi Li<sup>c</sup>, Cuicui Ding<sup>b,\*</sup>, Lihui Chen<sup>a,d</sup>, Hui Wu<sup>a</sup>, Min  
Zhang<sup>a,d,\*</sup>

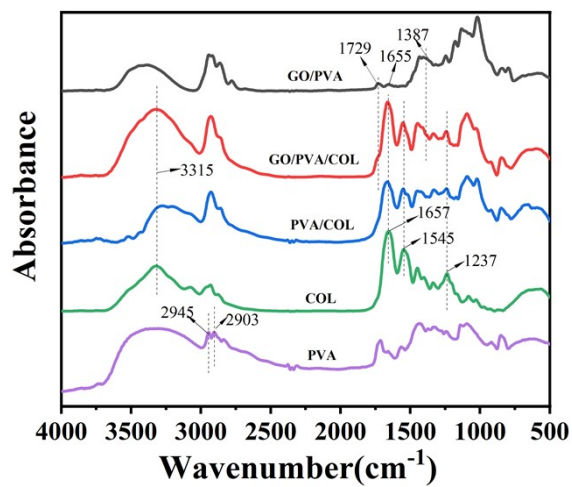
<sup>a</sup> *College of Material Engineering, Fujian Agriculture and Forestry University, Fuzhou 350002, PR  
China*

<sup>b</sup> *College of Ecological Environment and Urban Construction, Fujian University of Technology,  
Fuzhou 350118, PR China*

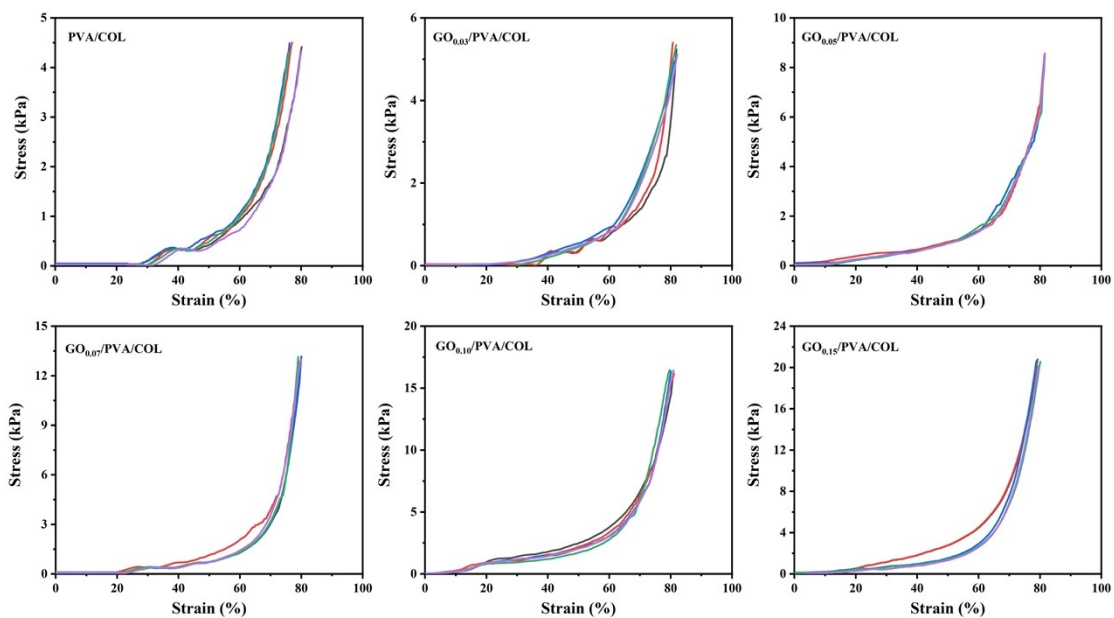
<sup>c</sup> *Department of Biochemistry and Molecular Biology, School of Basic Medical Sciences, Fujian  
Medical University, Fuzhou 350122, PR China*

<sup>d</sup> *National Forestry & Grassland Administration Key Laboratory for Plant Fiber Functional Materials,  
Fuzhou 350108, PR China*

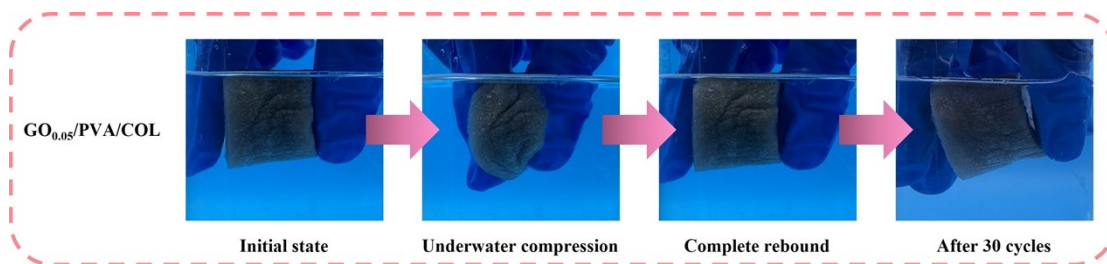
## Figures



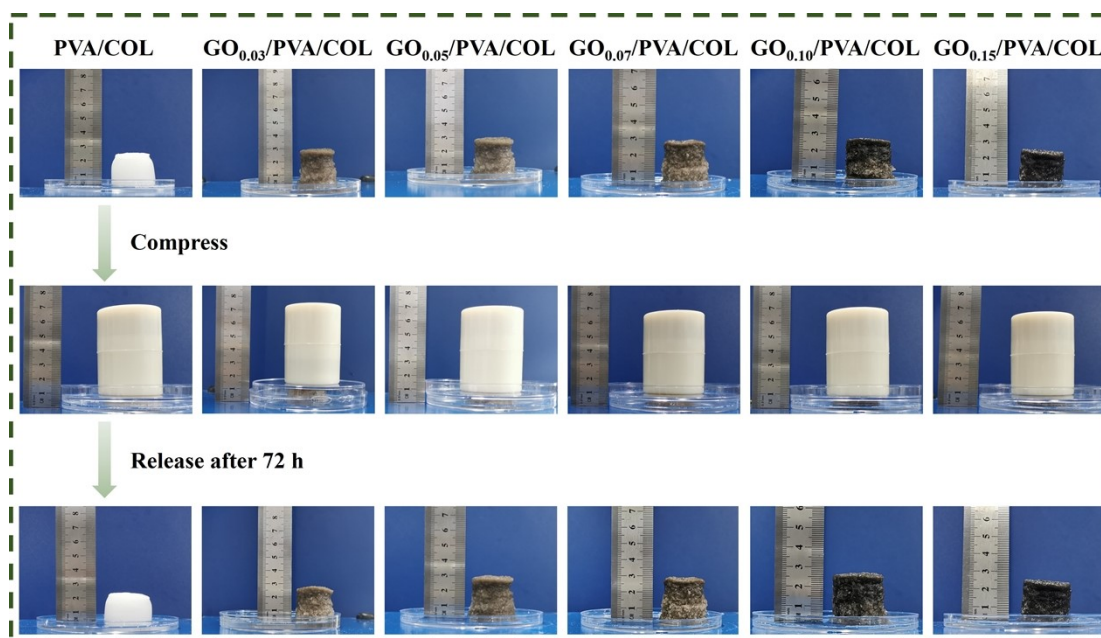
**Fig. S1** FTIR spectra of different sponges.



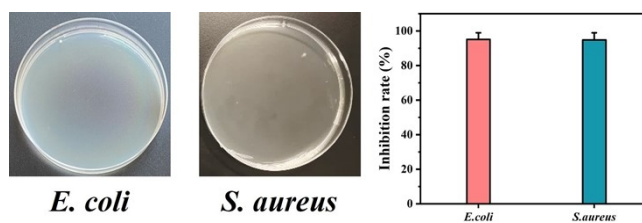
**Fig. S2** Cyclic compression curves of GO/PVA/COL composite sponges with GO contents of 0, 0.03, 0.05, 0.07, 0.10, and 0.15 wt%.



**Fig. S3** Photographs of GO<sub>0.05</sub>/PVA/COL composite sponges under cyclic compression.



**Fig. S4** GO/PVA/COL composite sponges before and after 72-h compression.



**Fig. S5** Antibacterial effect pictures and inhibition rates of GO<sub>0.05</sub>/PVA/COL composite sponge for *E. coli* and *S. aureus* without NIR irradiation.