

## Supporting Information

### **Capture and Inactivation System against Pathogens in Indoor Air using Melamine Sponge decorated Copper Nanoparticles Hybrid Air Filter**

Van Cam Thi Le<sup>†a,b</sup>, Soyeong Yoon<sup>†a,c</sup>, Eunsil Kang<sup>a,d</sup>, Mahshab Sheraz<sup>a,b</sup>, Tae Uk Han<sup>e</sup>, Ali Anus<sup>a,b</sup>, Hien  
Duy Mai<sup>a,b</sup>, Sung-chan Choi<sup>a</sup> and Seungdo Kim<sup>a,b,d\*</sup>

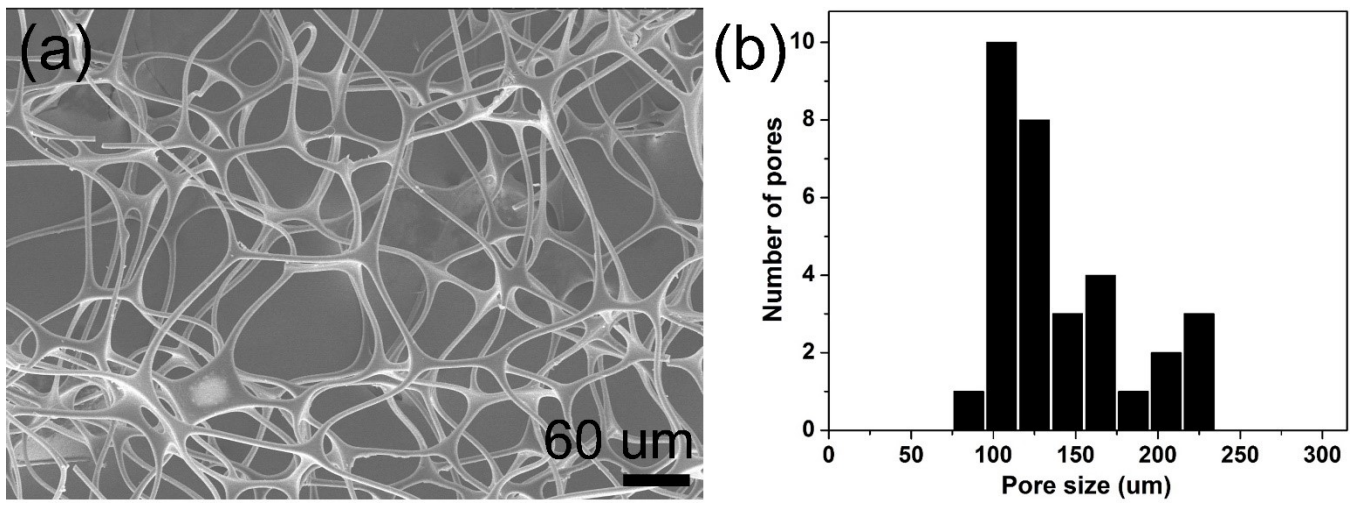
<sup>a</sup> Department of Environmental Sciences and Biotechnology, Hallym University, Chuncheon 24252,  
South Korea

<sup>b</sup> Nano-InnoTek Corporation, 123, Digital-ro 26-gil, Guro-gu, Seoul, South Korea

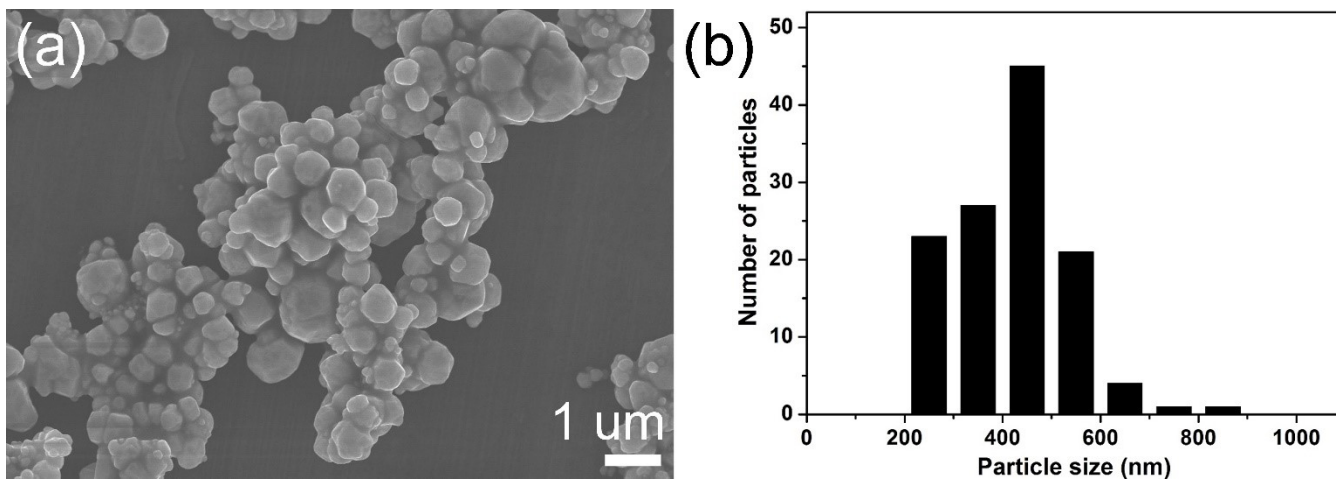
<sup>c</sup> Department of Environmental Engineering, Kangwon National University, Chuncheon 24341, South  
Korea

<sup>d</sup> Research Center for Climate Change and Energy (RCCCE), Hallym University, Chuncheon 24252,  
South Korea

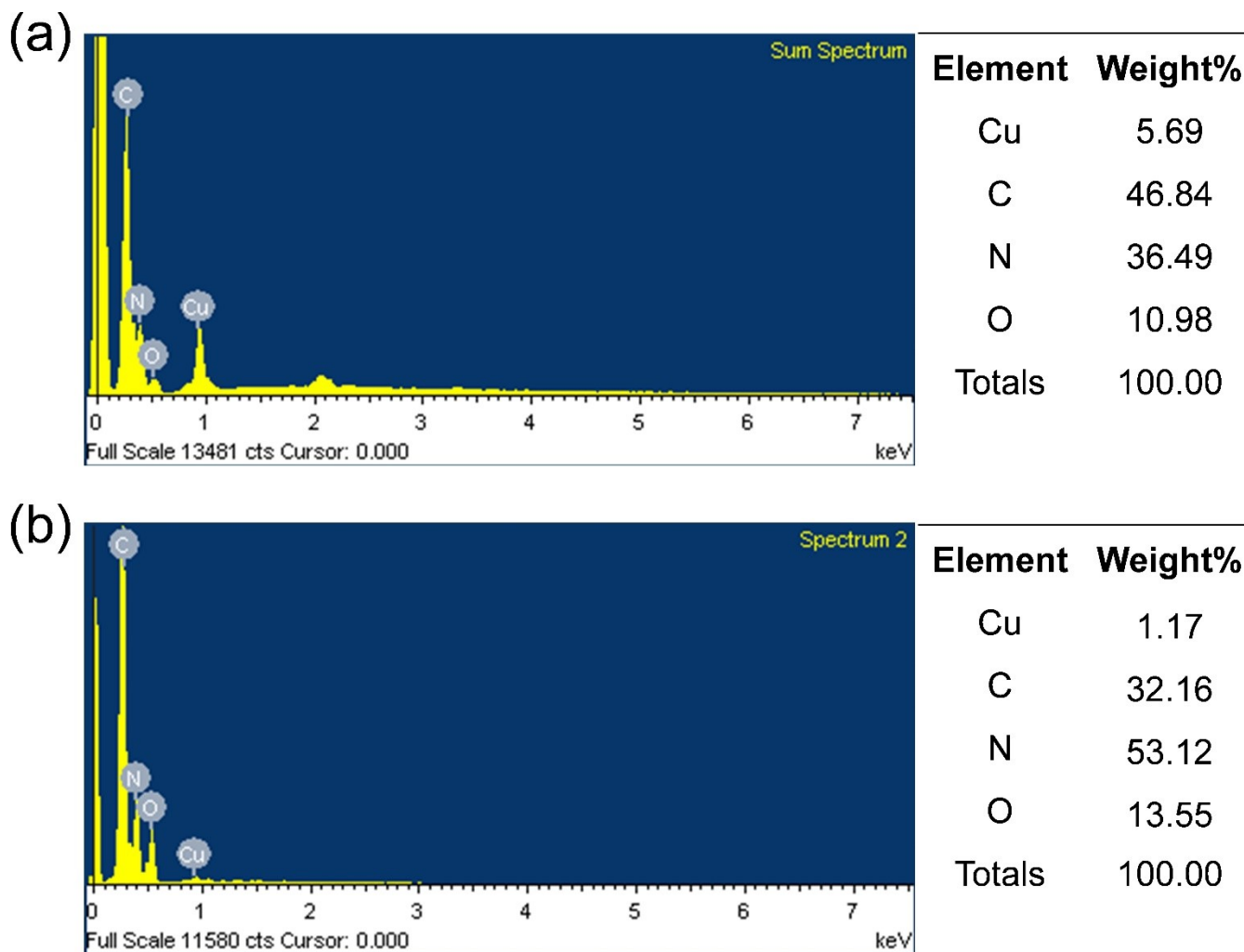
<sup>e</sup> Environmental Resources Research Department, National Institute of Environmental Research,  
Hwangyeong-ro 42, Seo-gu, Incheon 22689, Republic of Korea



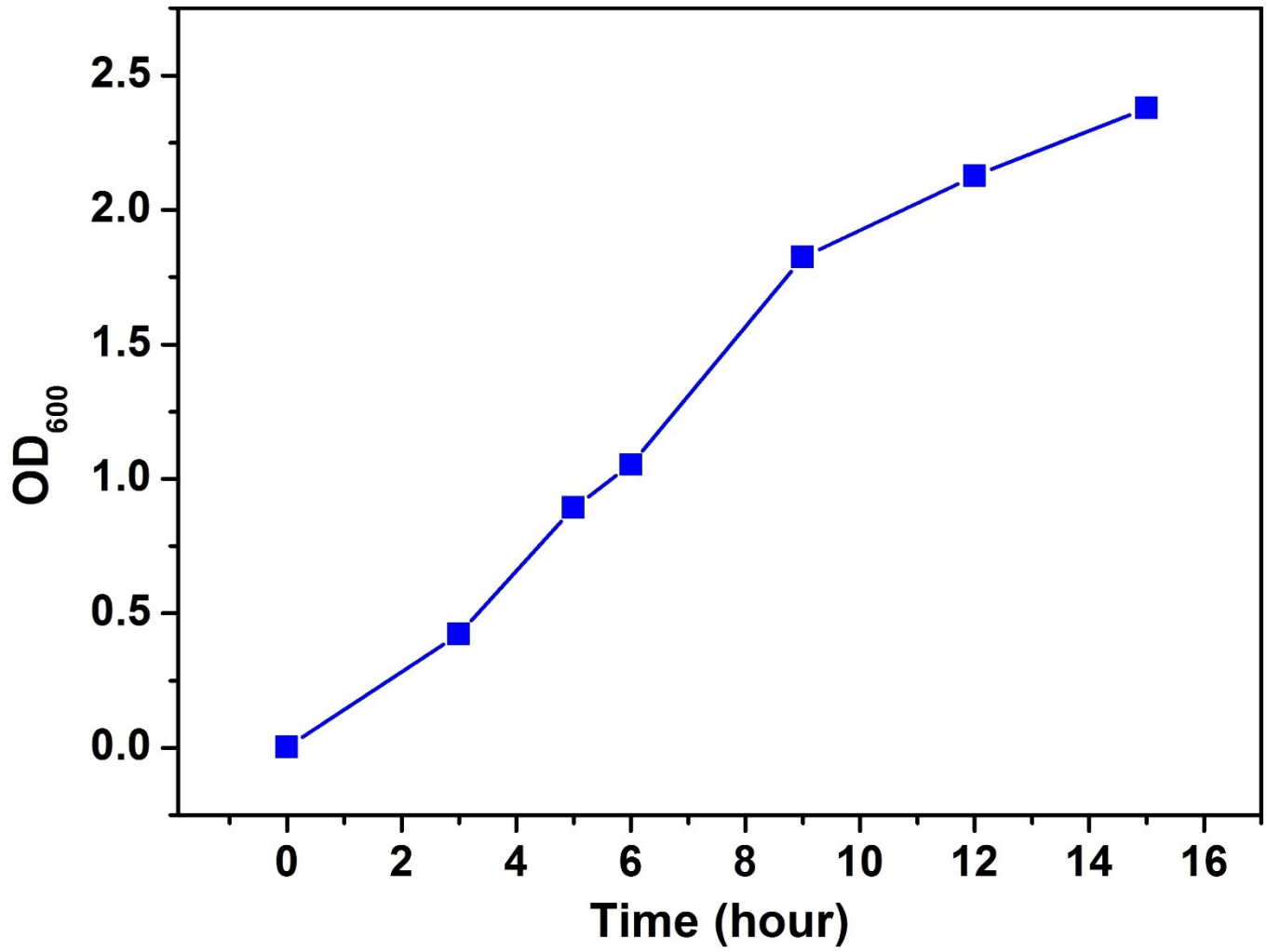
**Figure S1.** (a) SEM image of MS and (b) pore size distributions of MS.



**Figure S2.** (a) SEM image of copper nanoparticles (Cu NPs) and (b) size distributions of Cu NPs.



**Figure S3.** Copper contents measured by EDS spectra of the surface of Cu/MS foams, obtained from different Cu (Oac)<sub>2</sub> and L-ascorbic acid concentrations (a) Cu/MS (5.69 Cu wt.%) and (b) Cu/MS (1.17 Cu wt.%).



**Figure S4.** Growth curve of *E. coli* as an optical density (O.D<sub>600 nm</sub>) plot for pathogen capture test.