

# Electronic Supplementary Information

## Facile synthesis of CeMnO<sub>x</sub> catalytic gel with bacterial microenvironment-responsive antibacterial property

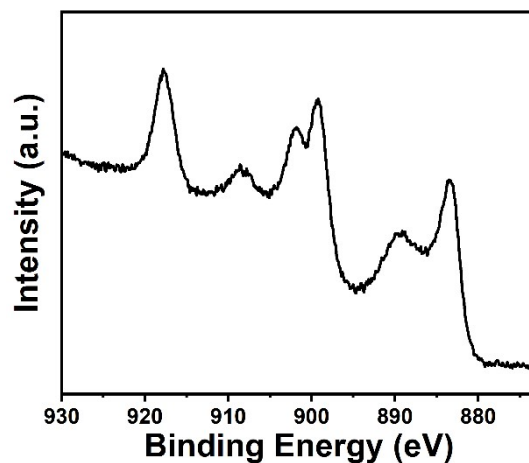
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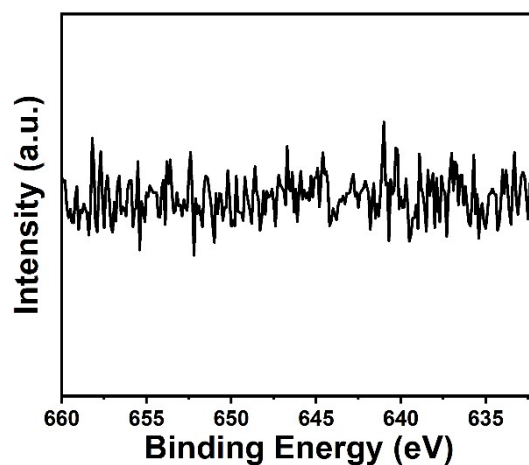
<sup>b</sup>School of Physics and Optoelectronic Engineering, Shandong University of Technology, Zibo 255000, China

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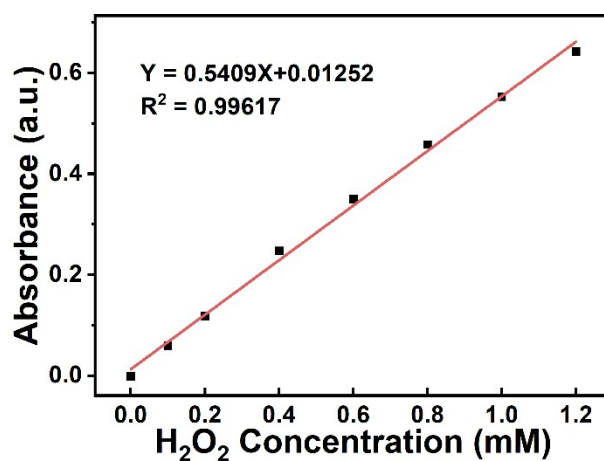
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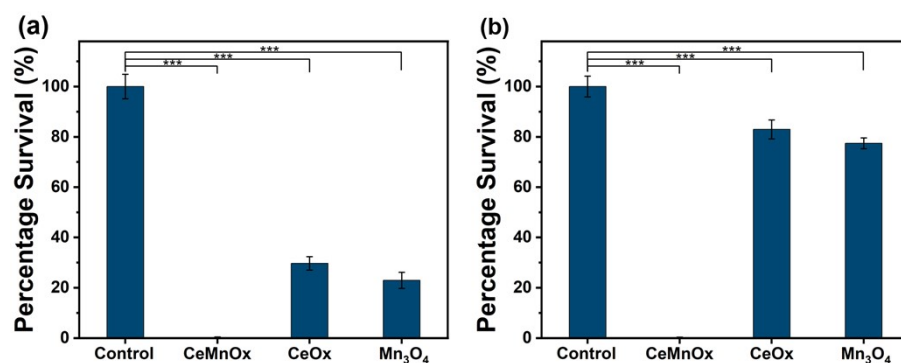
**Figure S1.** High resolution Ce 3d XPS spectrum of CeMnOx.



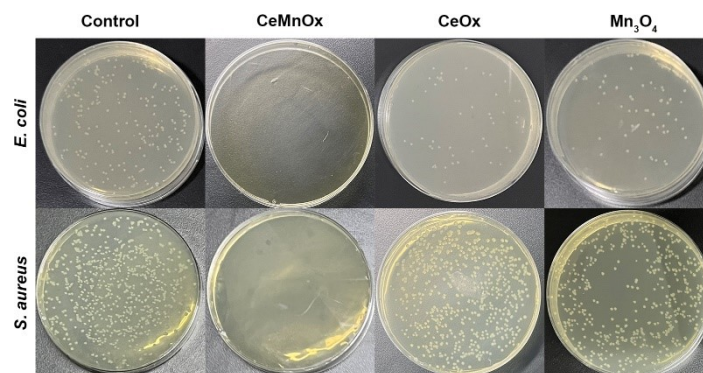
**Figure S2.** High resolution Mn 2p XPS spectrum of CeMnOx.



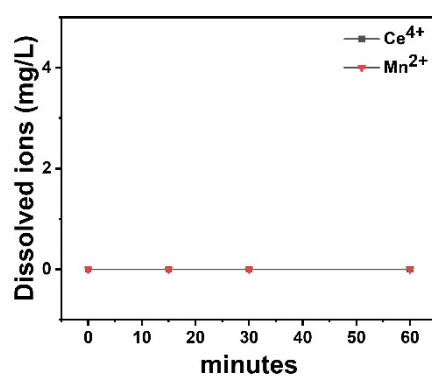
**Figure S3.** The standard curve of H<sub>2</sub>O<sub>2</sub> generation measured by UV-vis at 405 nm.



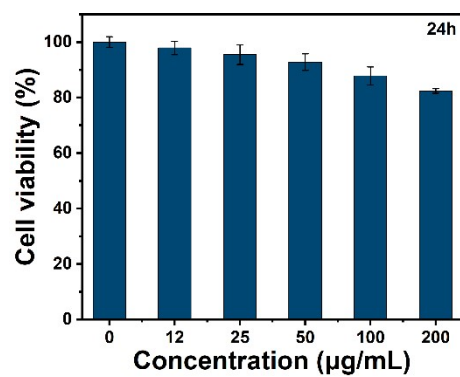
**Figure S4.** Relative bacterial viability of (a) *E. coli* and (b) *S. aureus* of bacterial colonies in corresponding treated groups.



**Figure S5.** Photographs of bacterial colonies in CeMnOx, CeOx and Mn<sub>3</sub>O<sub>4</sub> treated groups.



**Figure S6.** Ion release profiles of Ce<sup>4+</sup> and Cu<sup>2+</sup> in 1 hour under physiological conditions.



**Figure S7.** Viability of 3T3 cells treated with varied concentrations of CeMnOx under physiological conditions.