

Supporting Information for:
**Understanding the formation of CuS concave superstructures
with peroxidase-like activity**

Weiwei He^a, Huimin Jia^a, Xiaoxiao Li^a, Yan Lei^a, Jing Li^a, Hongxiao Zhao^a, Liwei Mi^a, Lizhi
Zhang^b, Zhi Zheng^{a*}

^a *Institute of Surface Micro and Nano Materials, Xuchang University, Xuchang 461000, P. R.
China.*

^b *Key Laboratory of Pesticide & Chemical Biology of Ministry of Education, College of
Chemistry, Central China Normal University, Wuhan 430079, P. R. China.*

*Address correspondence to the author. E-mail: zhengzhi9999@yahoo.com.cn

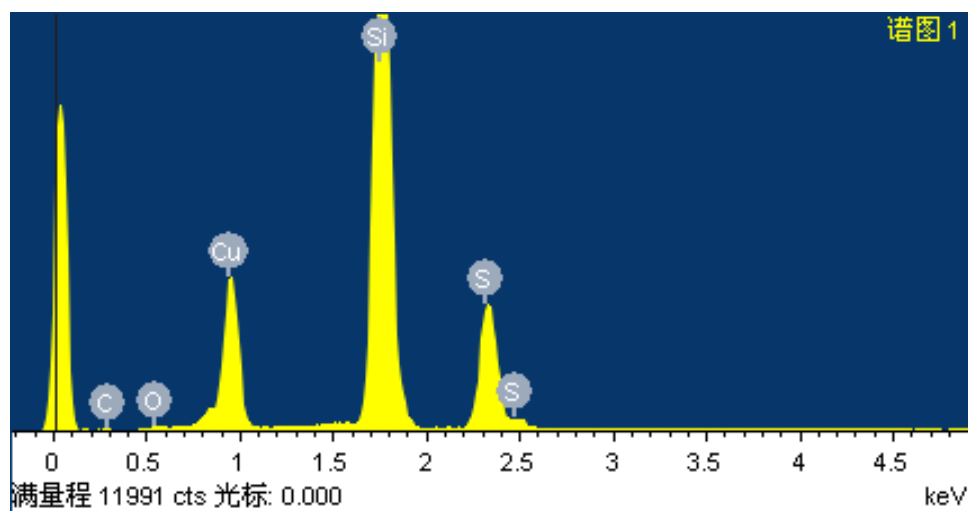


Figure S1 Energy dispersive X-ray analysis (EDX) of the as-prepared CuS superstructures obtained at 180 °C for 12h. Si signal comes from the Si substrate supporting CuS sample in SEM observation.

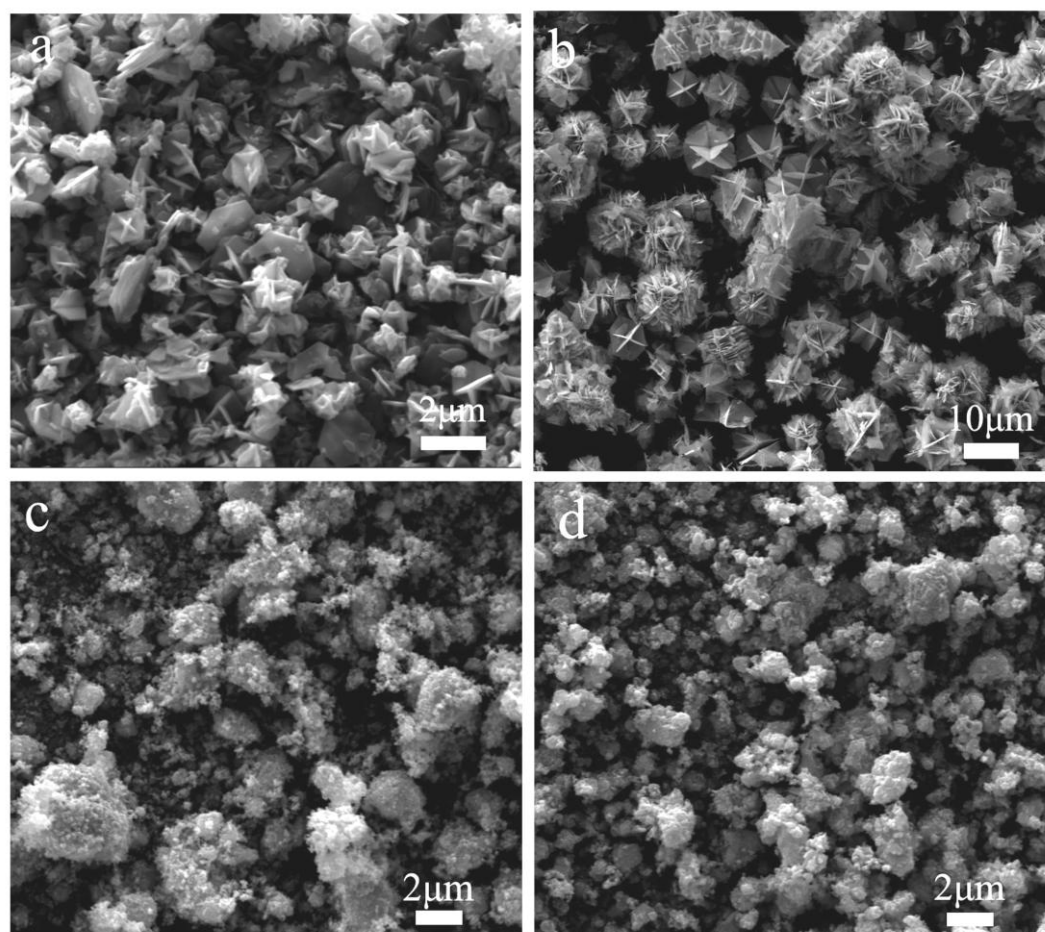


Figure S2. SEM images of CuS samples obtained by using different Cu^{2+} sources (sulfur powder as S source) and different S sources ($\text{Cu}(\text{NO}_3)_2$ as Cu^{2+} source) at 180°C for 12 h. (a) $\text{Cu}(\text{CH}_3\text{COO})_2 \cdot 5\text{H}_2\text{O}$, (b) $\text{CuCl}_2 \cdot 5\text{H}_2\text{O}$, (c) thiourea and (d) thioacetamide. Conditions: 0.25mmol Cu^{2+} sources and 0.5mmol S sources were added into 16 mL absolute ethanol.

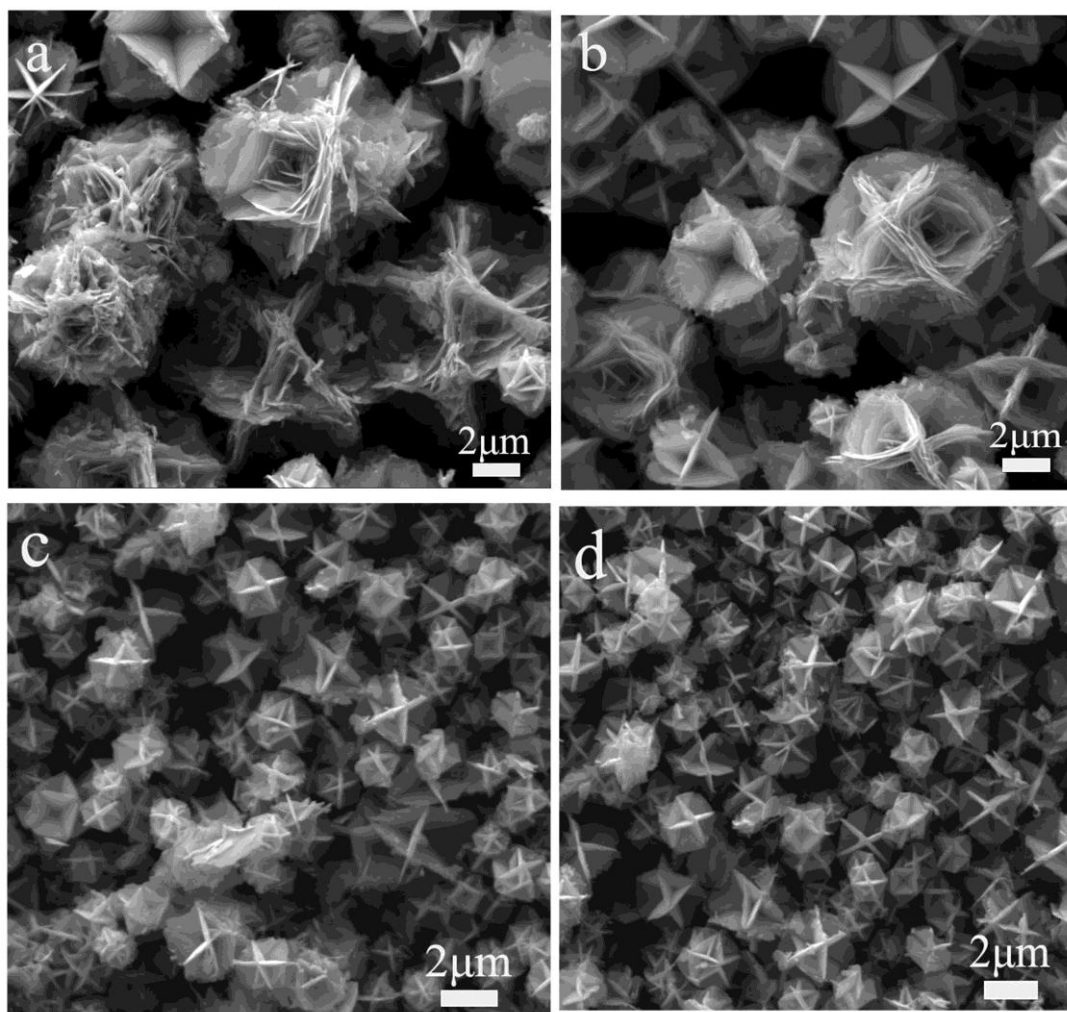


Figure S3. SEM images of the as-prepared CuS samples at different reaction temperature for 12 h. (a) 100 °C, (b) 120 °C, (c) 140 °C, (d) 160 °C. Cu^{2+} source: 0.25 mmol $\text{Cu}(\text{NO}_3)_2$, S source: 0.5 mmol sulfur powders.

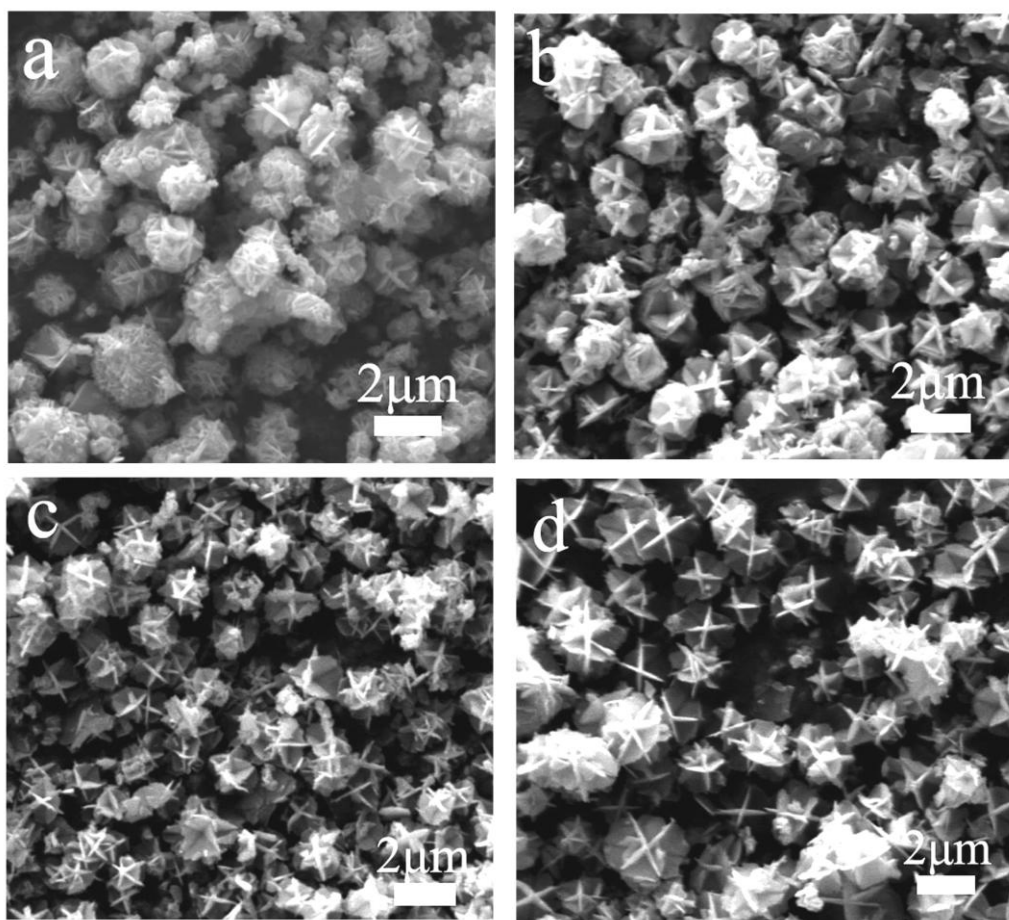


Figure S4 SEM images of the as-prepared CuS samples at 180 °C for different solvothermal times. (a) 0.5 h, (b) 1.0 h, (c) 4.0 h, (d) 8.0 h. Cu^{2+} source: 0.25 mmol $\text{Cu}(\text{NO}_3)_2$, S source: 0.5 mmol sulfur powders.