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## **Supporting Information**

## Synthesis of butterfly-like ZnO and their reducing ability for

## Au3+ ions towards enhanced photocatalysis

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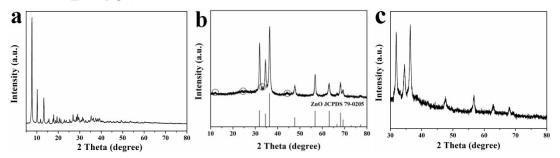


Figure S1 XRD patterns of (a) precursor of sample 1, (b) sample 2 synthesized at 150 °C, and (c) sample 1-Au.

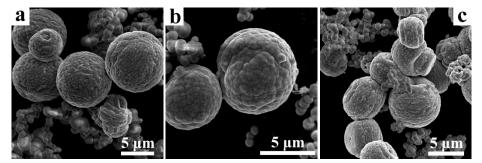


Figure S2 SEM images of ZnO products synthesized at 100 °C with different concentrations of HMT: (a) sample 6, 0.05 M; (b) sample 7, 0.10 M; and (c) sample 8, 0.15 M.

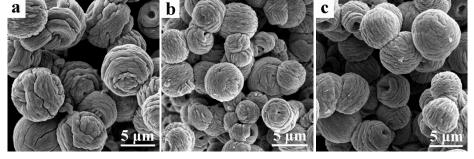


Figure S3 SEM images of ZnO products synthesized at 150 °C with different concentrations of HMT: (a) sample 9, 0.05 M; (b) sample 10, 0.10 M; and (c) sample 11, 0.15 M.