SUPPORTING INFORMATION

Excellent Peroxidase Mimic Property of CuO/Pt Nanocomposites and Its Application as a Ascorbic Acid Sensor

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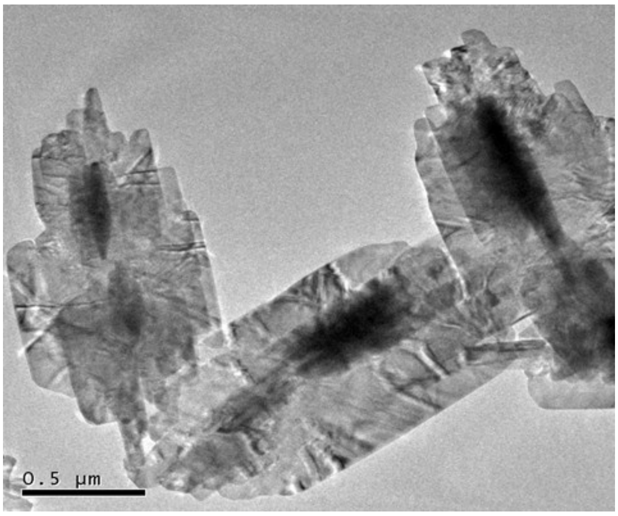

Fig. S1. TEM image of CuO nanosheets

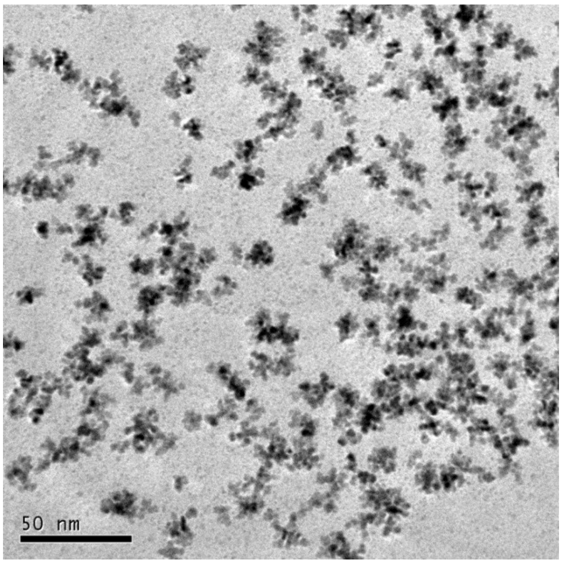

Fig. S2. TEM image of Pt nanoparticles

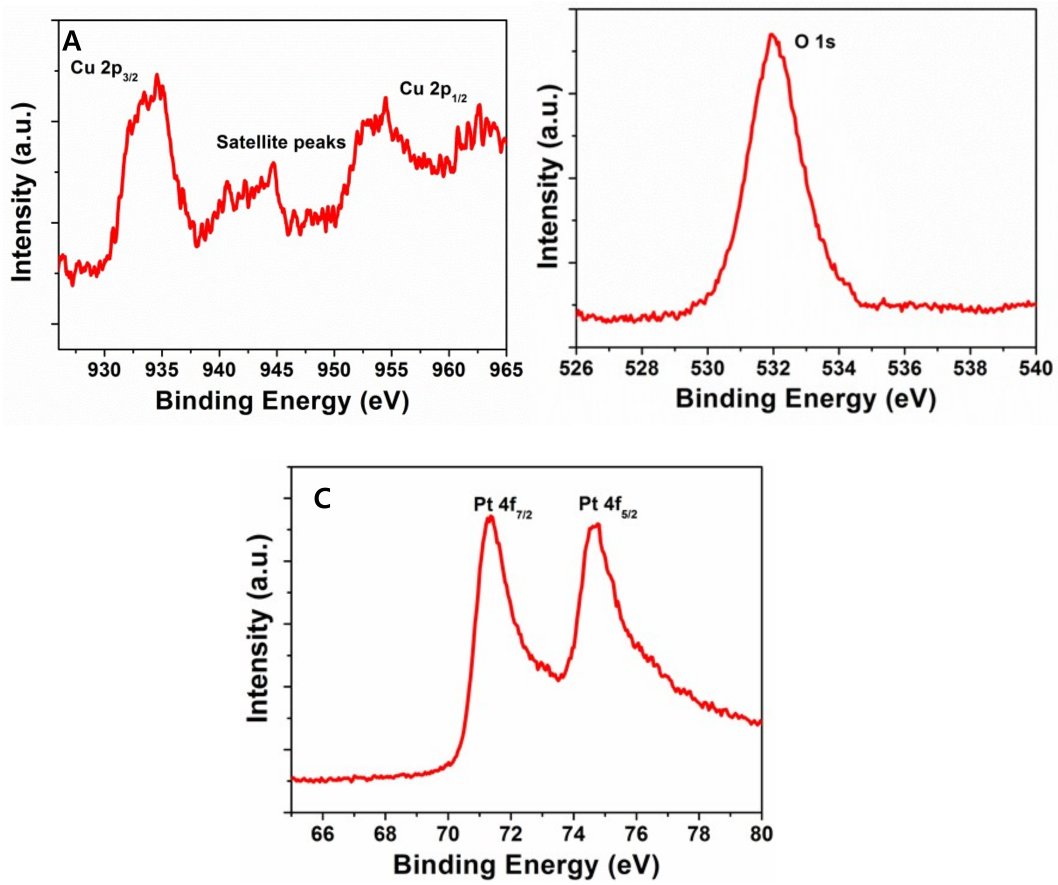

Fig. S3. XPS spectra of Cu 2p (A), O 1s (B) and Pt 4f (C)

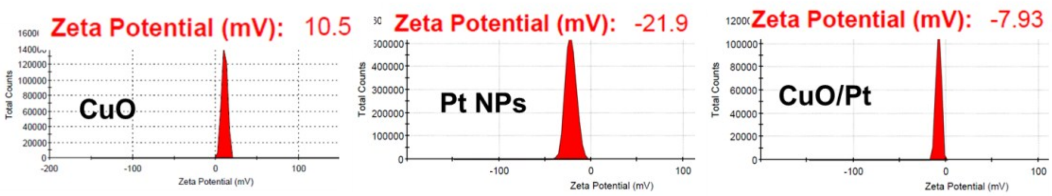

Fig. S4. Zeta potential of CuO, Pt NPs and CuO/Pt nanocomposites

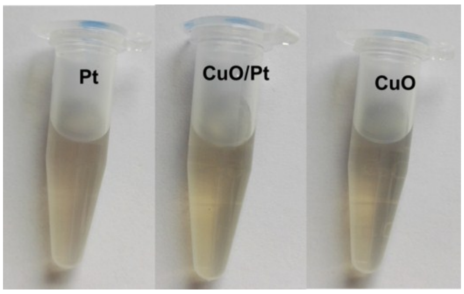

Fig. S5. Photos of CuO, Pt NPs and CuO/Pt nanocomposites in solution at pH 4.5

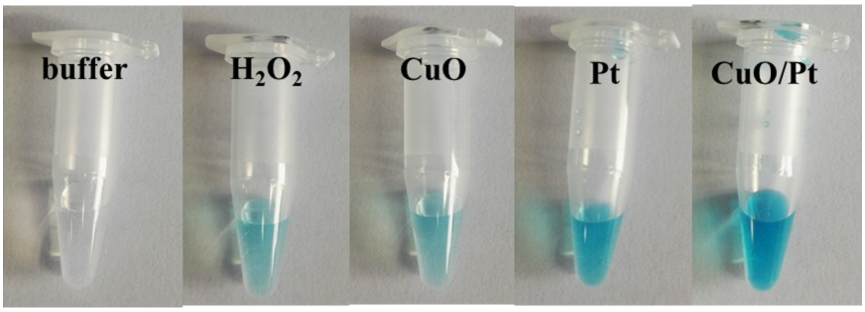

Fig. S6. Color changes after TMB treated with buffer, H_2O_2 alone, CuO + H_2O_2, Pt + H_2O_2 and CuO/Pt + H_2O_2 (concentrations of NPs and H_2O_2 are 2.5 ug·mL^{-1} and 1 mM, respectively)

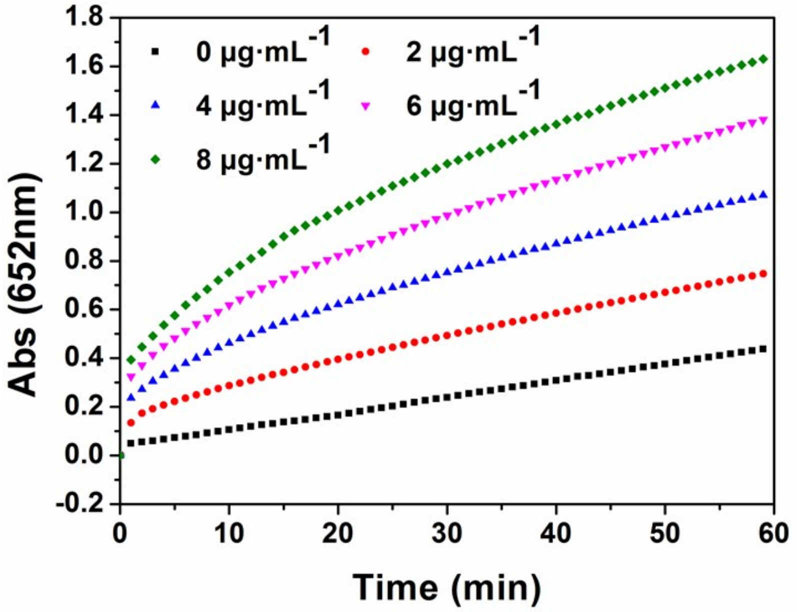

Fig. S7. Time dependent of absorbance changes at 652 nm in the presence of different concentration of CuO/Pt and H_2O_2

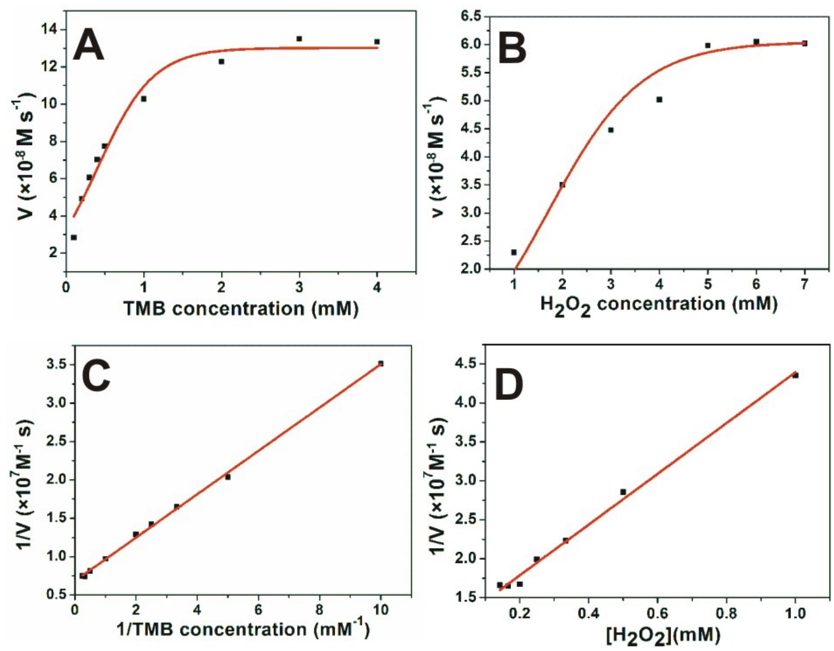

Fig. S8. Steady-state kinetic analysis using Michaelis-Menten model (A, B) and Lineweaver-Burk model (C, D) for CuO/Pt nanocomposites.

Table S1. Comparison of the apparent Michaelis-Menten constant (Km) and maximum reaction rate (υmax) of CuO/Pt and HRP.

Catalyst	substrate	K_m (mM)	V_{max} (10^{-8} Ms^{-1})
CuO/Pt	TMB	0.413	14.6
	H_2O_2	2.887	8.85
HRP	TMB	0.434	10
	H_2O_2	3.7	8.71

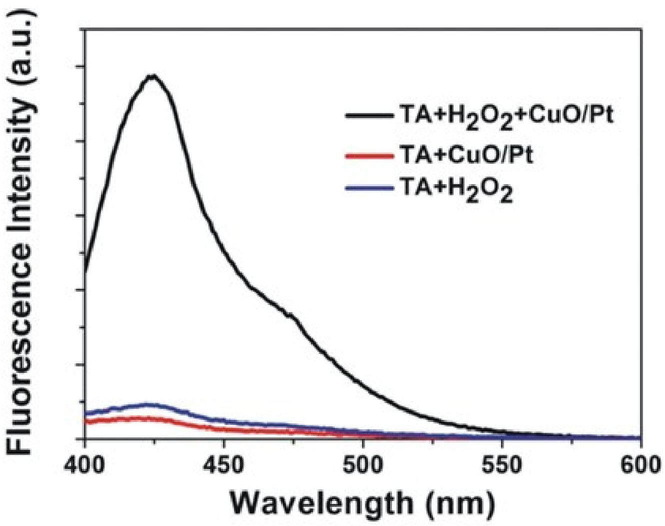

Fig. S9. Reaction between terephthalic acid (TA) and hydroxyl radicals generated by H_2O_2, CuO/Pt and CuO/Pt +H_2O_2.

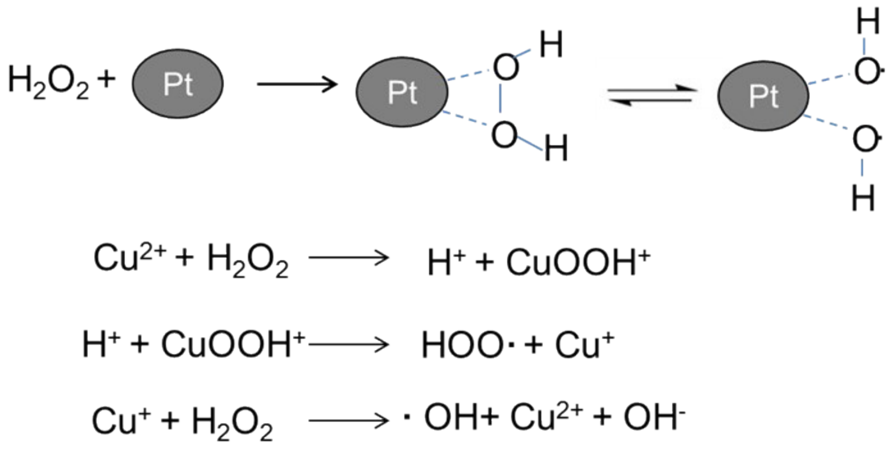

Fig. S10. The catalytic mechanism scheme for H_2O_2-CuO/Pt system.

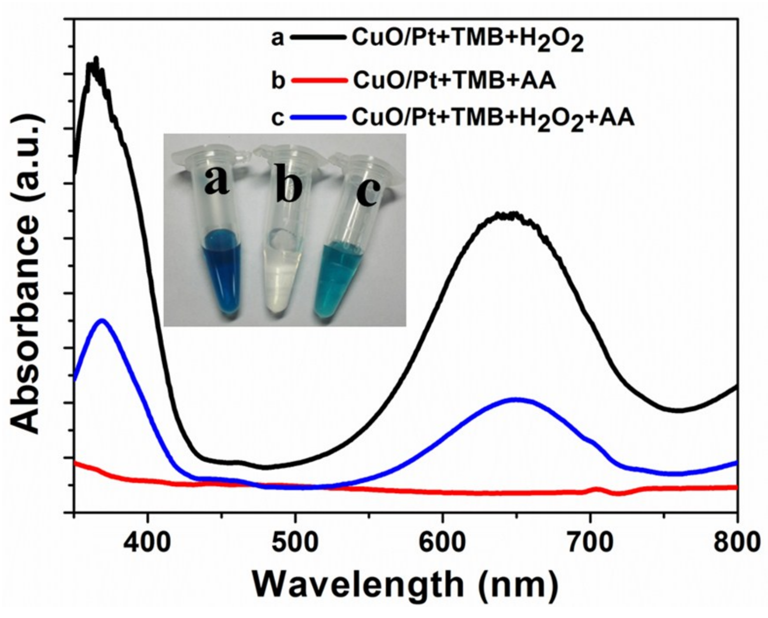

Fig. S11. Absorption spectra of TMB in the presence of CuO/Pt+H_2O_2 (a), CuO/Pt +AA (b) and CuO/Pt+H_2O_2+AA (c). Inset is the corresponding photograph of the three samples.

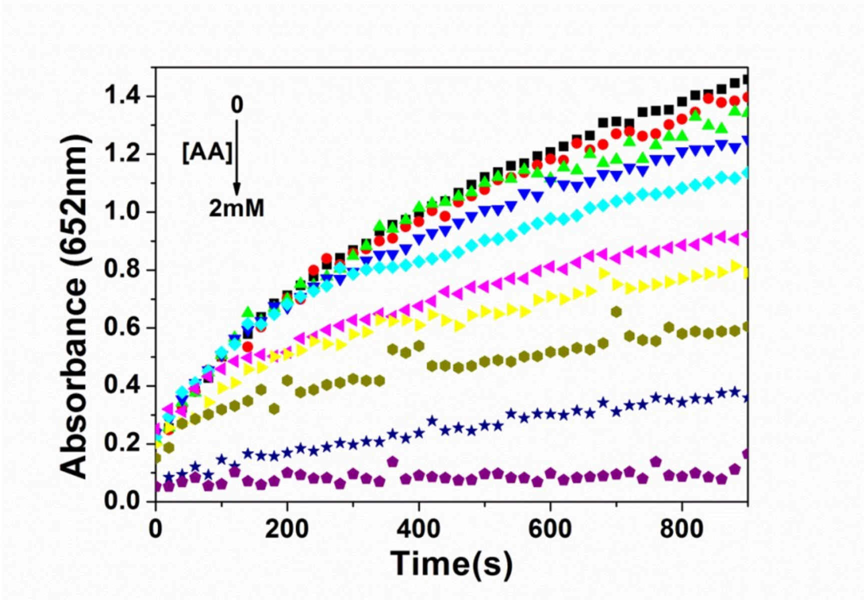

Fig. S12. Time-dependent absorbance changes at 652 nm in the presence of different concentration of AA in the system of TMB-CuO/Pt-H_2O_2

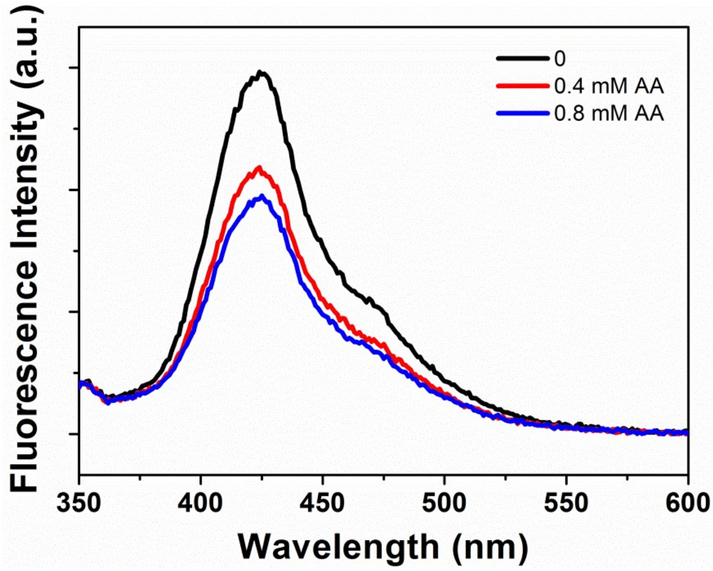

Fig. S13. Reaction between terephthalic acid (TA) and hydroxyl radicals generated by CuO/Pt +H_2O_2, CuO/Pt +H_2O_2+ AA (0.4 mM), CuO/Pt +H_2O_2+ AA (0.8 mM)