Supporting Information

Electrochemical preparation of three dimensional PEDOT-Cu_xO hybrid for enhanced oxidation and sensitive detection of hydrazine

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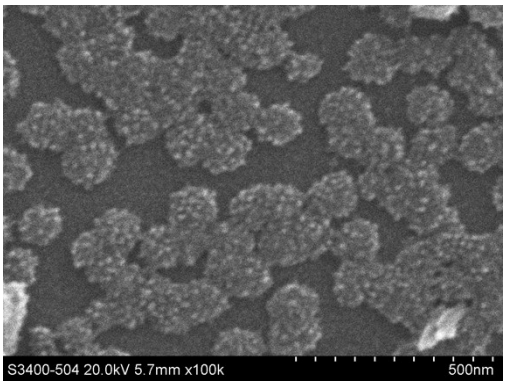

Fig. S1. SEM images of Cu_xO directed deposited on bare GCE.

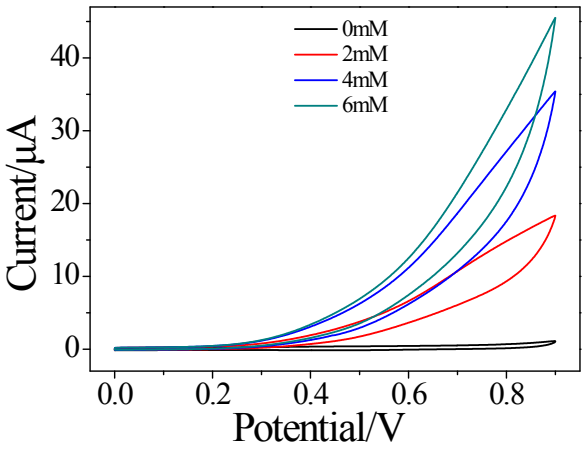

Fig. S2 The cyclic voltammetery of bare GCE in the absence or in the presence of different concentration of hydrazine.

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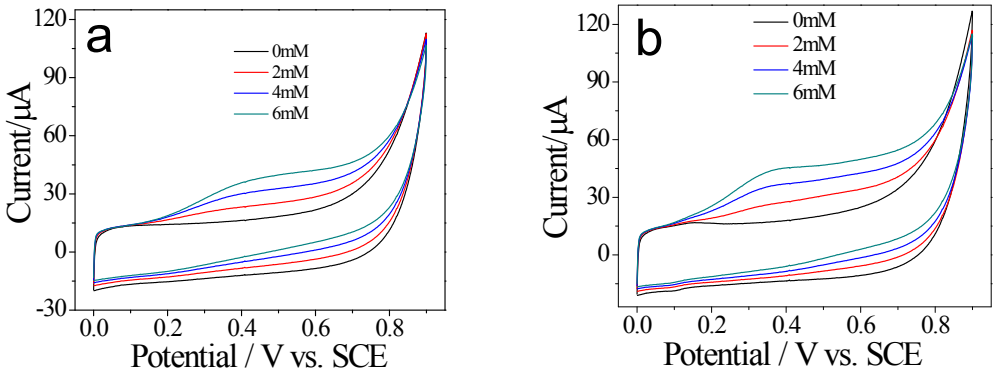

Fig. S3 Cyclic voltammetry of different concentration of hydrazine on planar 2D-PEDOT/GCE (a) or 2D-PEDOT-Cu_xO/GCE (b).

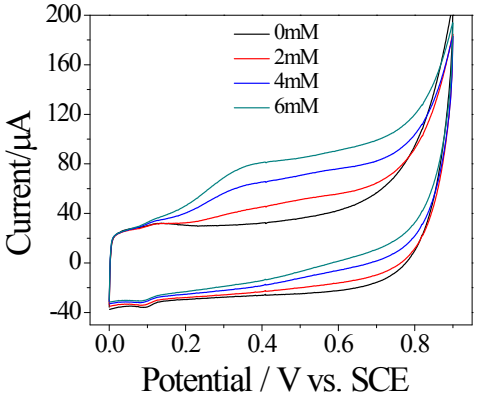

Fig. S4 Cyclic voltammetry of different concentration of hydrazine on 3D-PEDOT/GCE with similar Cu_xO loading amount with that on Cu_xO/GCE shown in Fig. 3a. The Cu_xO loading amount was tuned by changing the electrodeposition time of Cu on modified electrode. The loading amount of Cu_xO on Cu_xO/GCE with deposition time 90s (Fig. 3a) is similar to that on 3D-PEDOT-Cu_xO/GCE with deposition time 45s.

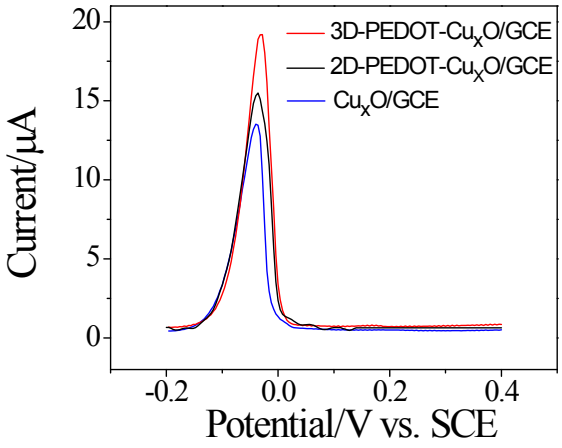

Fig. S5 The stripping voltammetry for Cu comes from PEDOT-Cu_xO/GCE(red curve) or Cu_xO/GCE (blue curve).

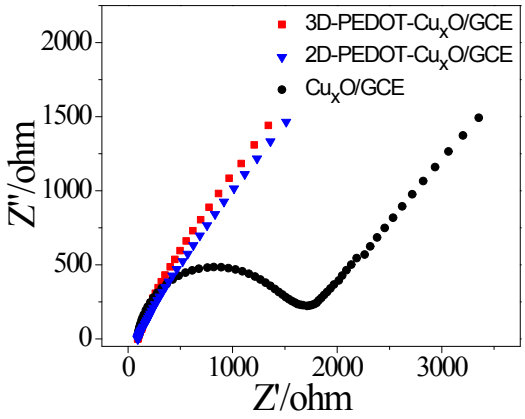

Fig. S6 EIS measurement results of PEDOT-Cu_xO/GCE (red curve) or Cu_xO/GCE (black curve) in 5 mM $K_3Fe(CN)_6$ -$K_4Fe(CN)_6$ in the presence of 0.1M KCl.

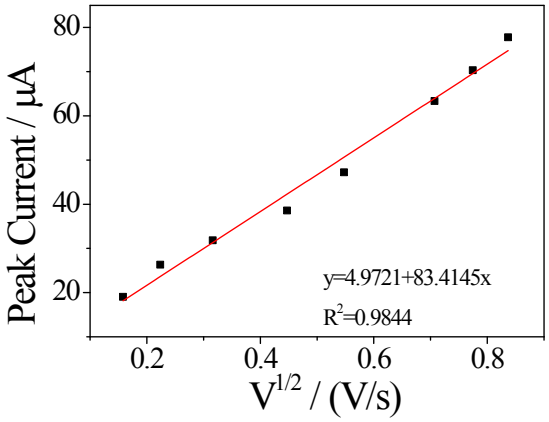

Fig. S7 The current response of hydrazine oxidation versus scan rate obtained from PEDOT-Cu_xO/GCE in pH 8.0 PBS in the presence of 4 mM hydrazine. (Derived from Fig. 4a in manuscript, and the background current were subtracted.)