

## Electronic supplementary information (ESI)

# Hierarchical Au-CuO Nanocomposite from Redox Transformation Reaction for Surface Enhanced Raman Scattering and Clock Reaction

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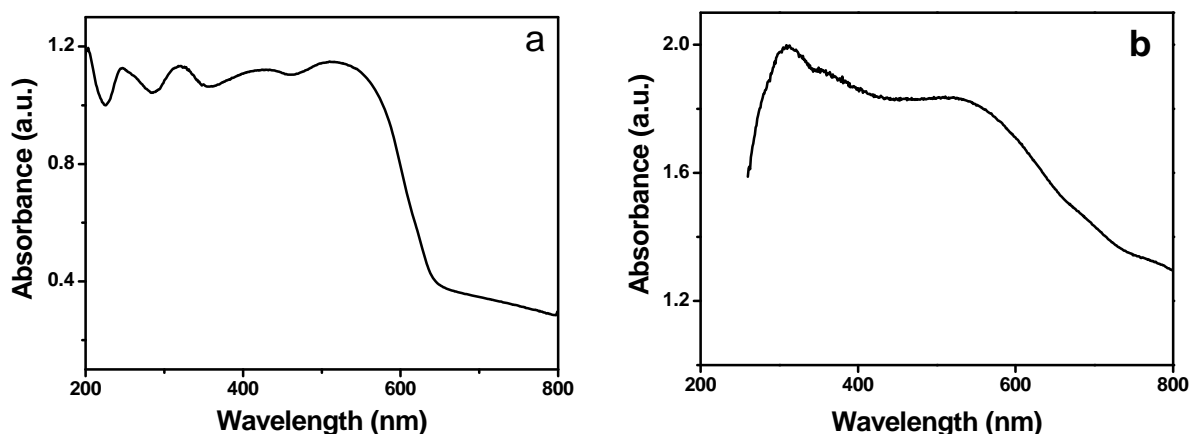


Figure S1. DRS spectra of (a) as-prepared Cu<sub>2</sub>O sphere and (b) Au-CuO nanocomposite.

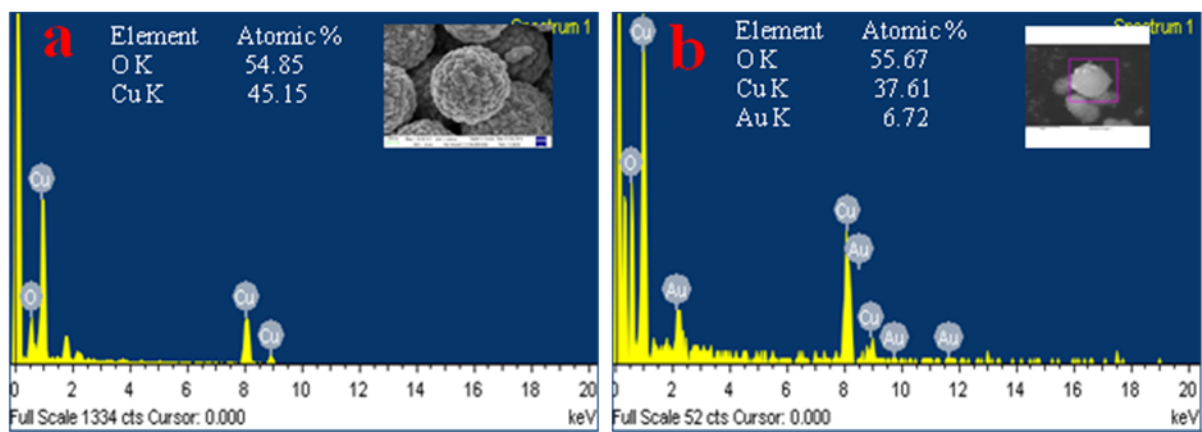


Figure S2. EDX analysis of (a) as-prepared  $\text{Cu}_2\text{O}$  sphere and (b) Au-CuO nanocomposite.

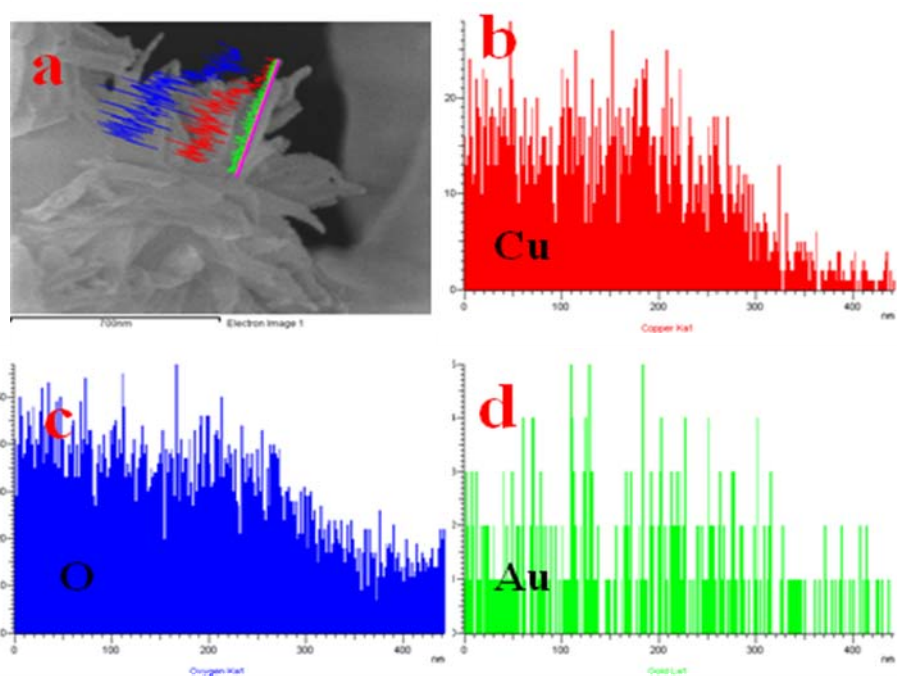


Figure S3. Line mapping of a single tip of Au-CuO nanoflower (a) for the element Cu(b), O(c) and Au(d).

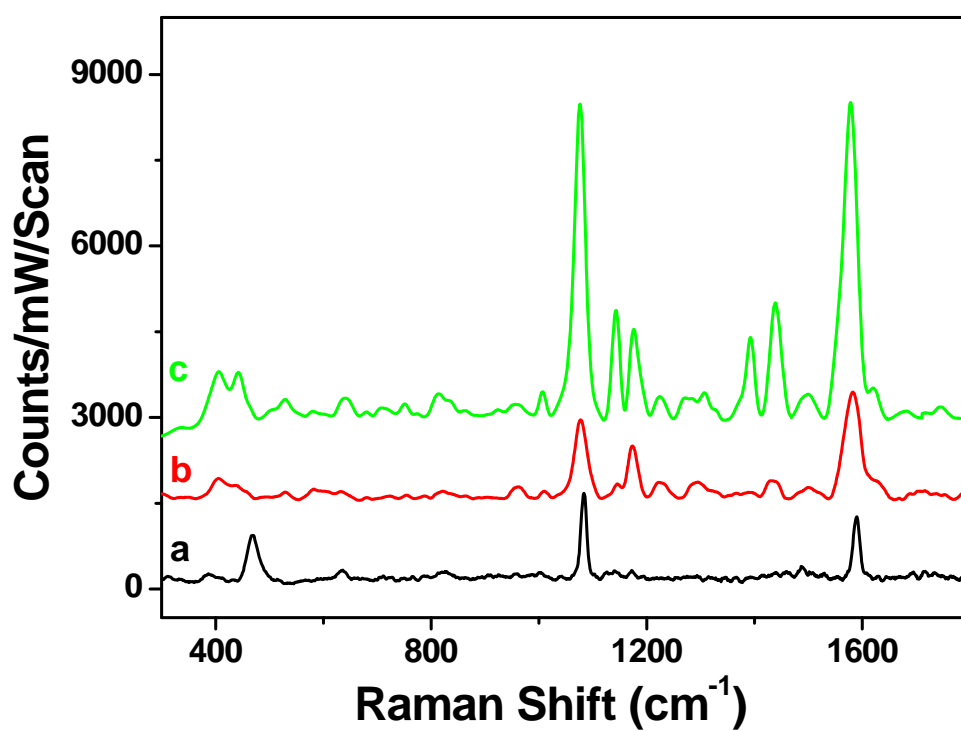


Figure S4. SERS spectra of (b)  $10^{-5}$  M  $\text{Cu}_2\text{O}$  nanoparticle, (c)  $10^{-5}$  M Au NP and (a) NRS spectrum of 4-ATP (0.1 M).

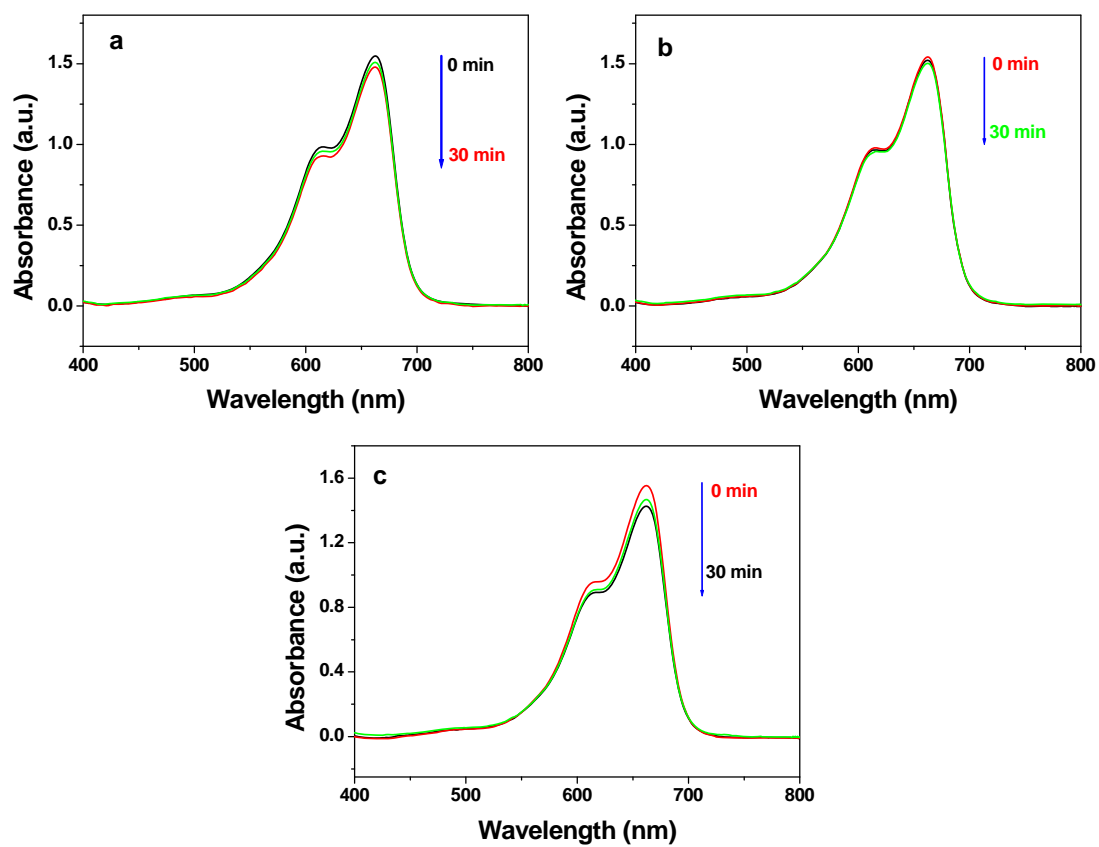


Figure S5. Comparative study of change of absorption spectra of MB by using various reducing agents e.g. (a) hydrazine hydrate, (b) glucose and (c) NaBH<sub>4</sub>.

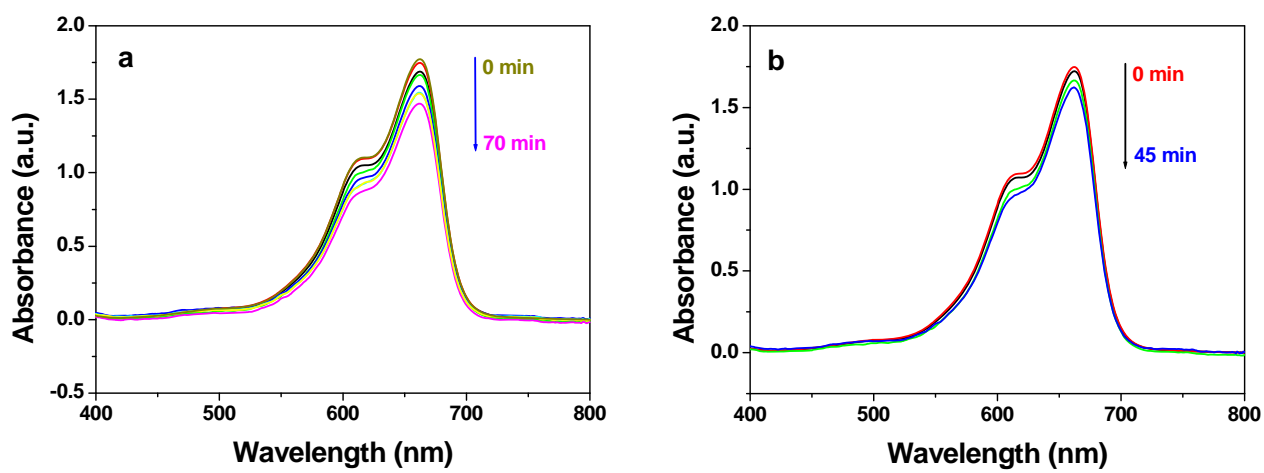


Figure S6. Comparative study of clock reaction of MB by using (a) CuO and Cu(0).

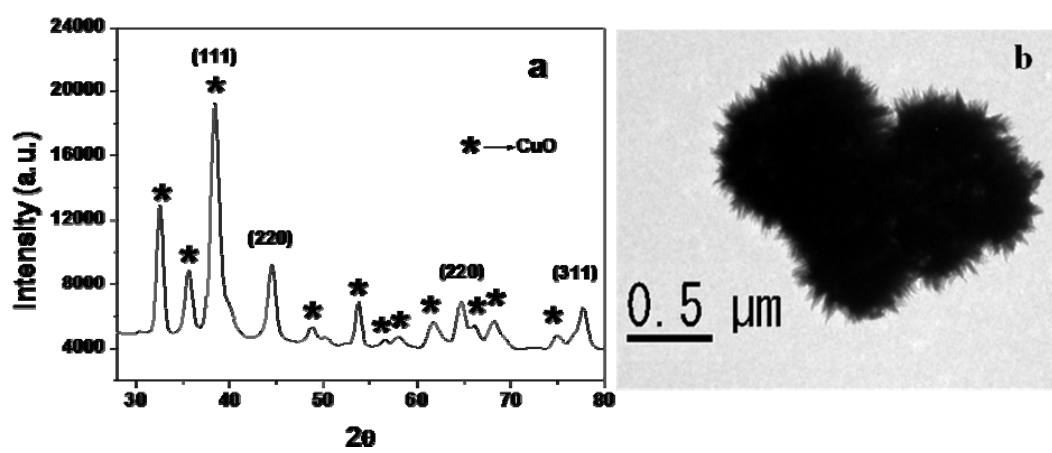


Figure S7. (a) XRD pattern and (b) TEM image of Au-CuO nanocomposite after the catalytic cycle.