Supplementary Information (SI) for Analytical Methods.
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SUPPORTING INFORMATION

Construction of Y-$CuMoO_4$ Heterojunction Nanocomposites for toxic Methylene Blue dye removal and electrocatalytic sensing of 3-Chlorophenol.

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FT-IR spectral studies of Nanohybrid material:

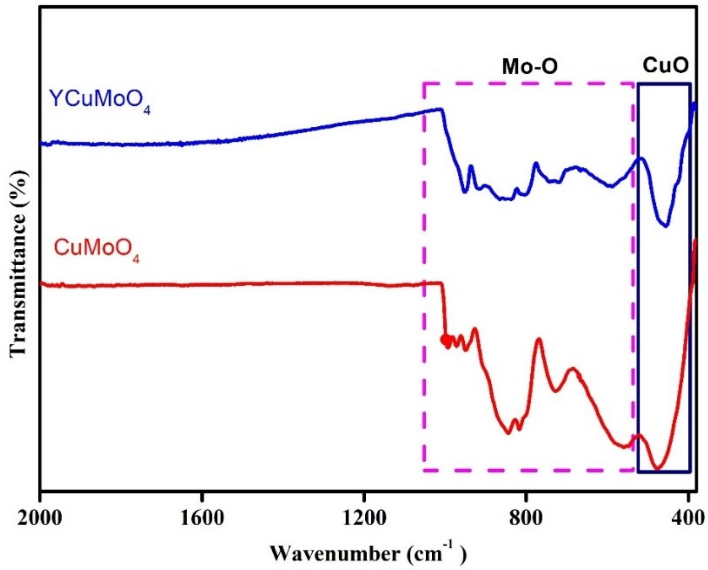

Fig. S1 FTIR spectra of $CuMoO_4$ and Y-$CuMoO_4$.

UV-Visible spectra:

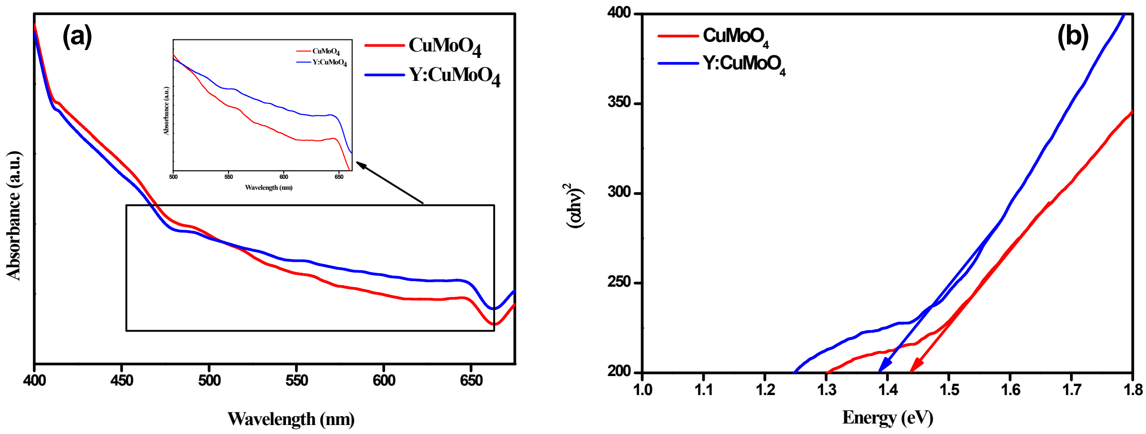

Fig. S2 (a) UV-Vis spectra and (b) Tauc plots for $CuMoO_4$ and Y-$CuMoO_4$.

BET analysis:

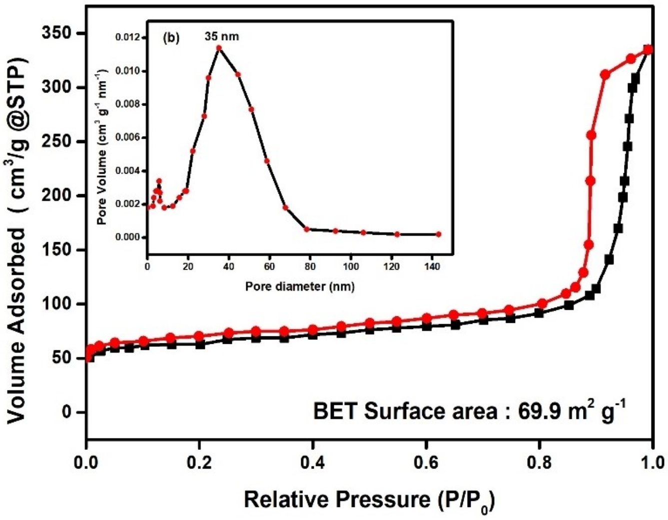

Fig. S3 BET plot of Y-$CuMoO_4$ (a), and the inserted one is the pore size distribution (b).

Influence of pH value and stability analysis.

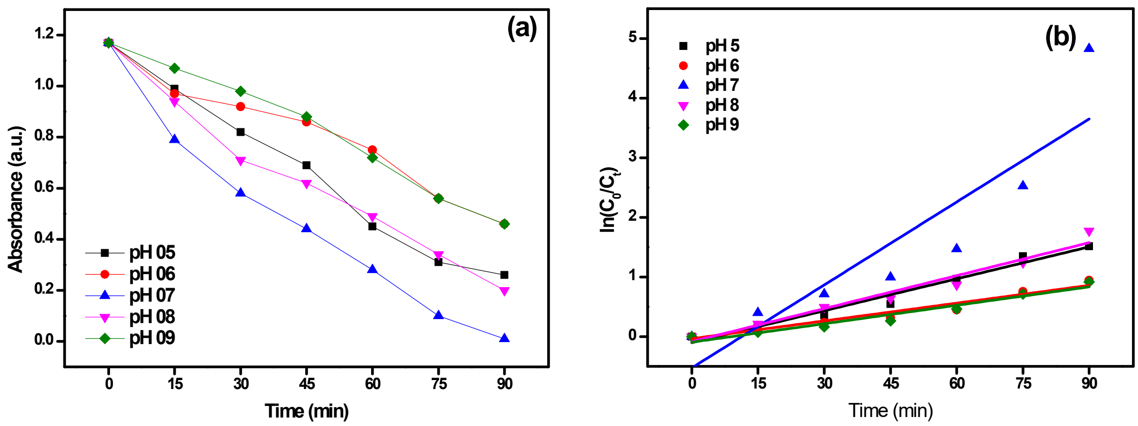

Fig. S4 (a)The effect of pH on dye degradation and (b) its corresponding rate constant.

Stability and reproducibility.

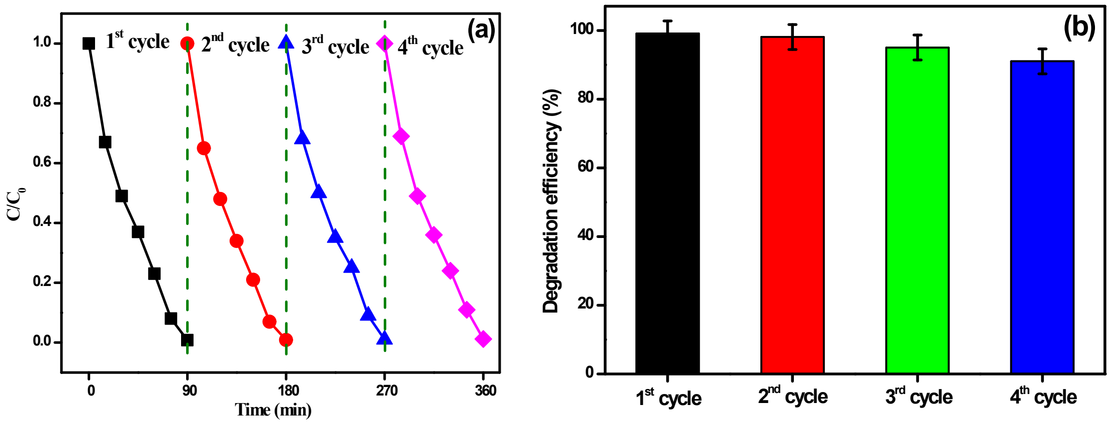

Fig. S5 a) 4-cycle stability test of Y-$CuMoO_4$ composite, (b) % of MB degradation efficiency with respect to number of cycles.

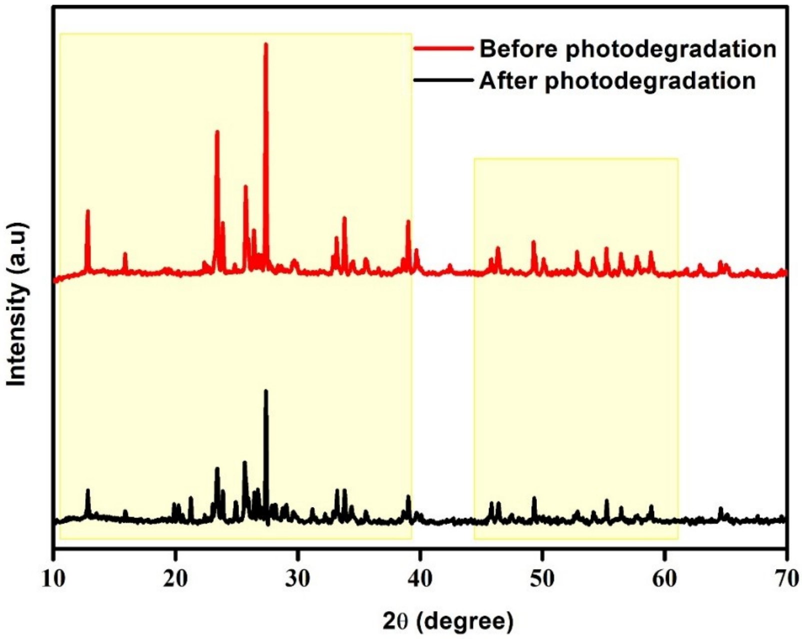

Fig. S6 XRD spectra of Y-$CuMoO_4$ nanomaterials before and after photodegradation.

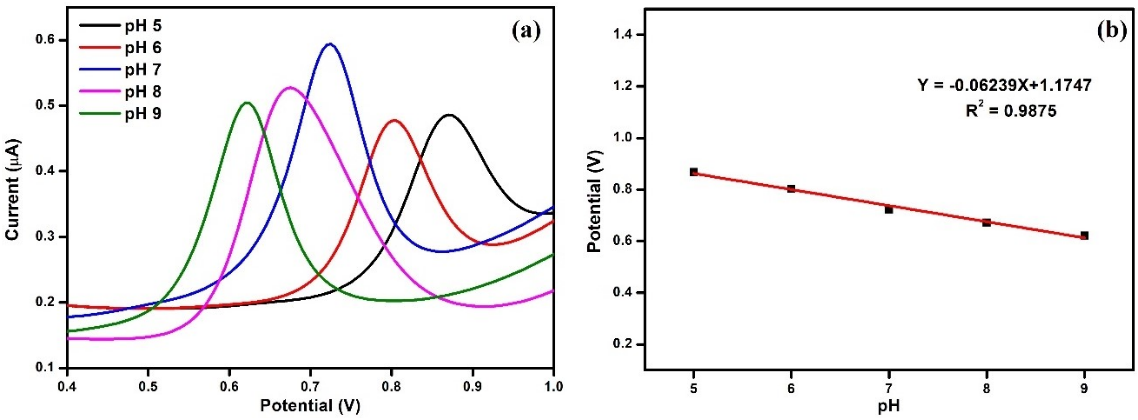

Fig. S7 (a) DPVs of 1 mM 3CP, in PBS buffer of different pH range from 5 to 9 on Y-$CuMoO_4$ modified GCE at the scan rate of 50 mVs^{-1}. (b) Oxidation potential values of 1 mM 3-CP as a function of pH.

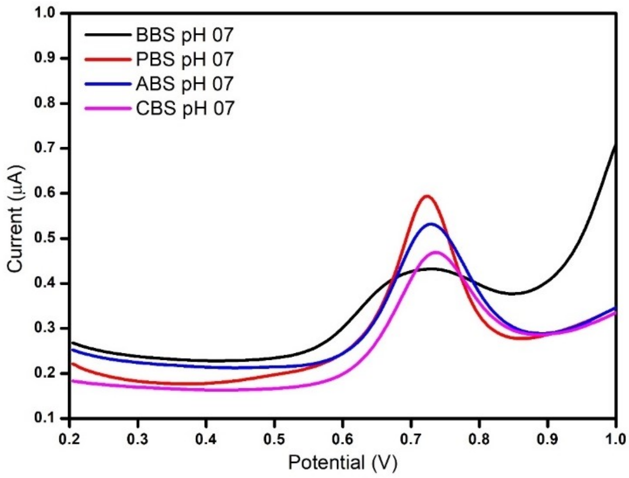

Fig. S8 DPVs of 0.1 mM 3-CP at various buffers like PBS, ABS, BBS and CBS on Y-$CuMoO_4$ NPs modified GCE at the scan rate of 50 mVs^{-1}.

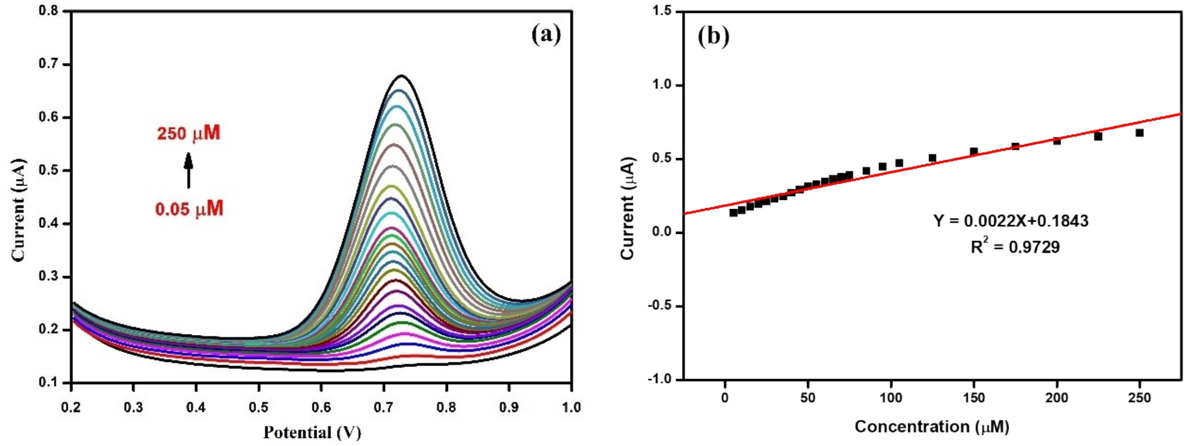

Fig. S9 (a) DPVs of the Y-$CuMoO_4$/GCE in 0.1 M PBS (pH 7) containing different concentrations of 3-CP (0.05 μM – 250 μM), and (b) corresponding calibration plot of current vs. concentration.

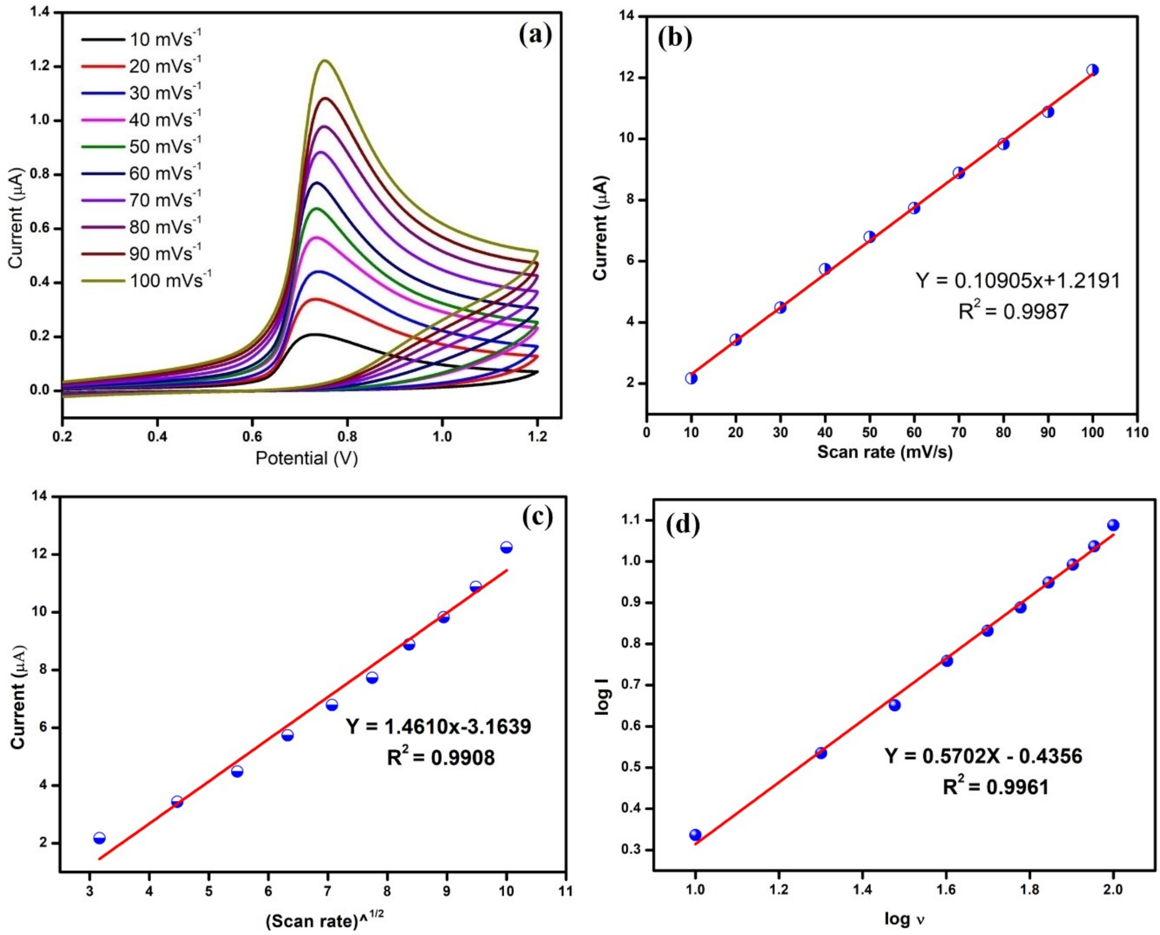

Fig. S10 (a) CVs of 1 mM 3-CP in 0.1M PBS pH7 at Y-CuMoO4NPs/GCE at various scan rates from 10 to 100 mV/s, Calibration plot of peak current vs. scan rate (b), peak current vs. square root of scan rate (c), and log I vs. log ν (d).

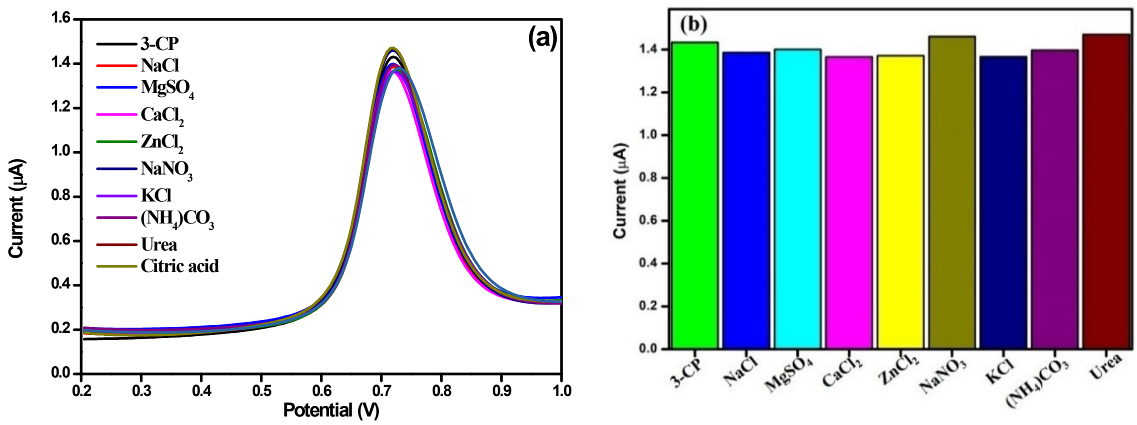

Fig. S11 (a) DPV response of 0.1 mM 3-CP in the presence of various common interfering species (from NaCl to citric acid) at Y-$CuMoO_4$/GCE, and (b) corresponding current vs. interfering species.

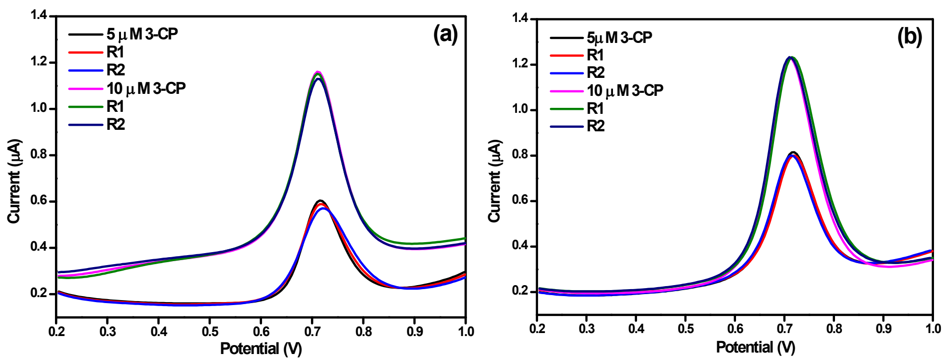

Fig.S12 (a) DPV's for real sample analysis of 3-CP (a) Tap water, and (b) Deionised water.