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SUPPORTING INFORMATION

Studies of simultaneous electrochemical sensing of Hg^{2+} and Cd^{2+} ions and catalytic reduction properties of 4-nitrophenol by CuO, Au, CuO@Au composite nanoparticles, synthesised using a graft copolymer as a bio template

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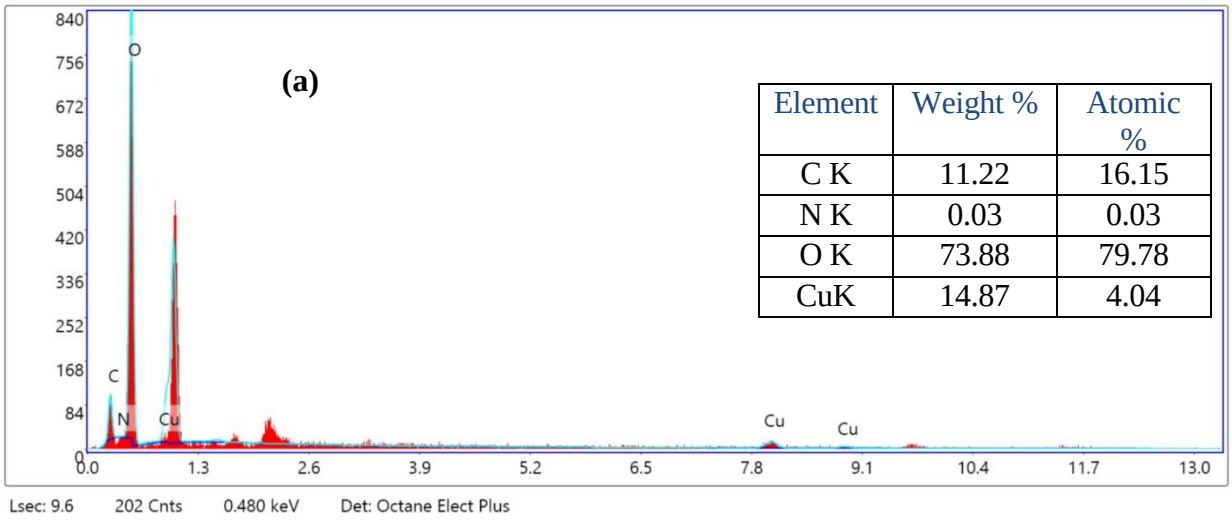
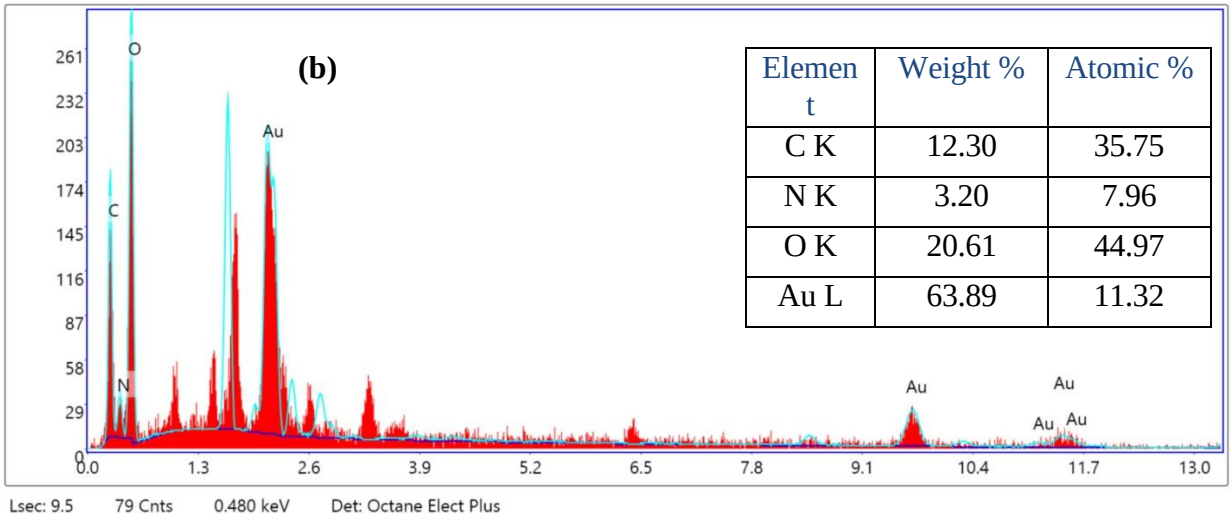


Element	Weight %	Atomic %
C K	11.22	16.15
N K	0.03	0.03
O K	73.88	79.78
CuK	14.87	4.04



Element	Weight %	Atomic %
C K	12.30	35.75
N K	3.20	7.96
O K	20.61	44.97
Au L	63.89	11.32

Fig. S1. (a) EDAX analysis of SAGAMA-CuO NPs (b) SAGAMA-Au NPs.

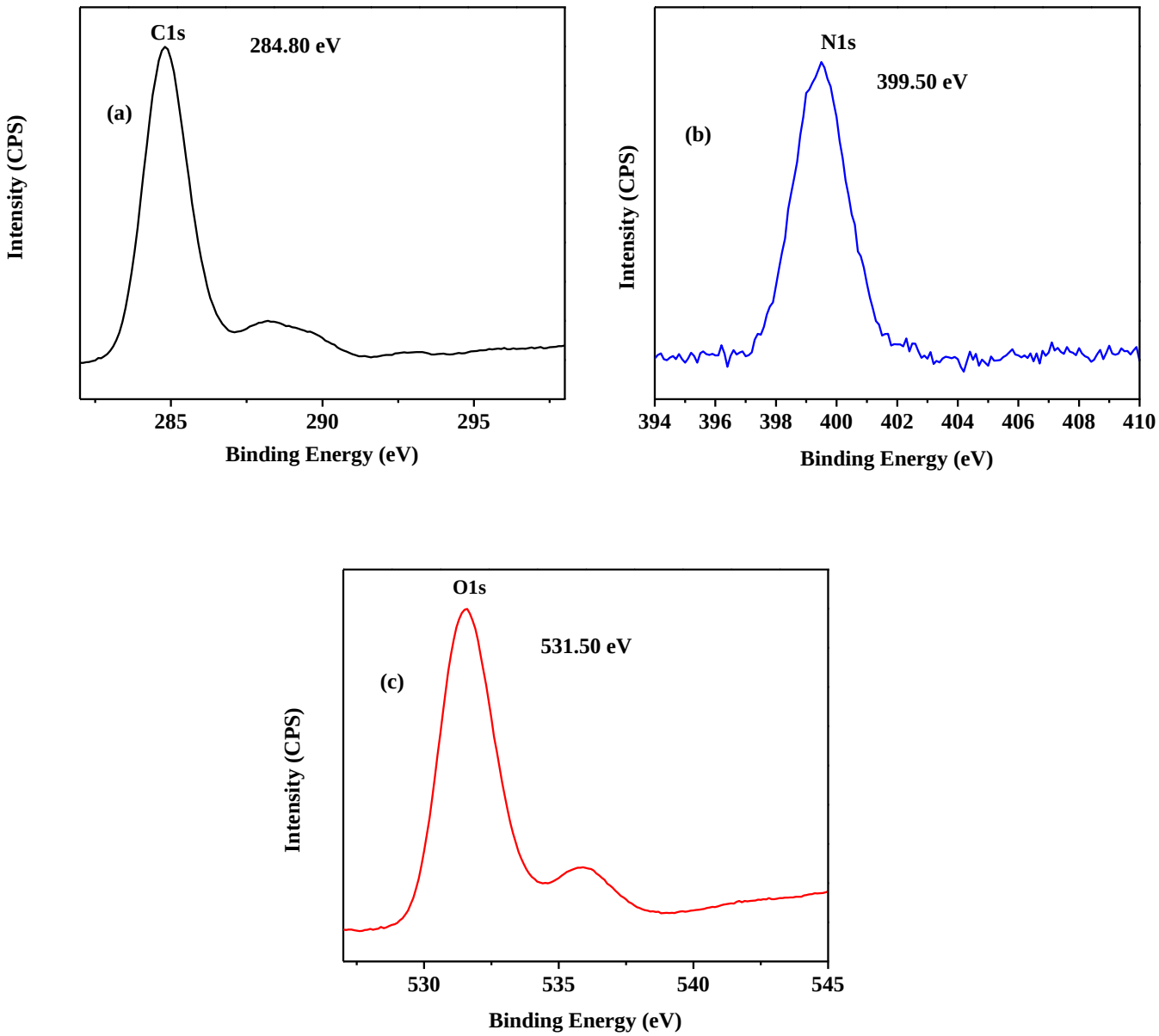


Fig. S2. XPS analysis of (a) C1s (b) N1s (c) O1s at SAGAMA-CuO@Au NPs

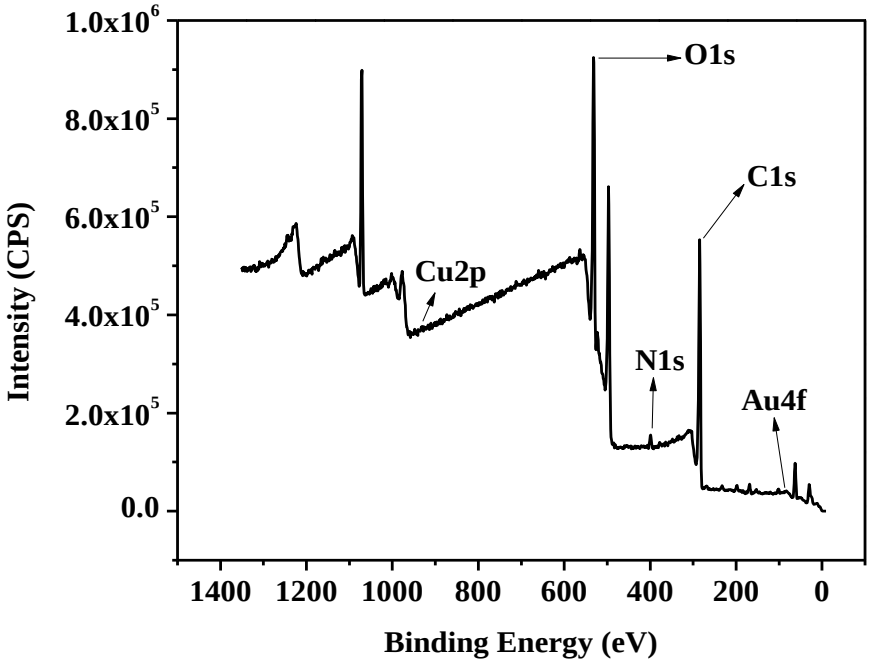
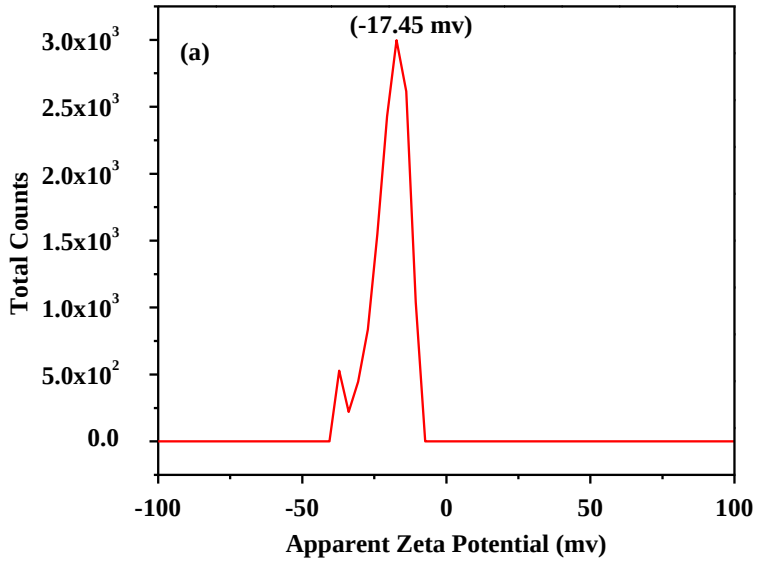


Fig. S3. Full range XPS spectra of SAGAMA-CuO@Au NPs



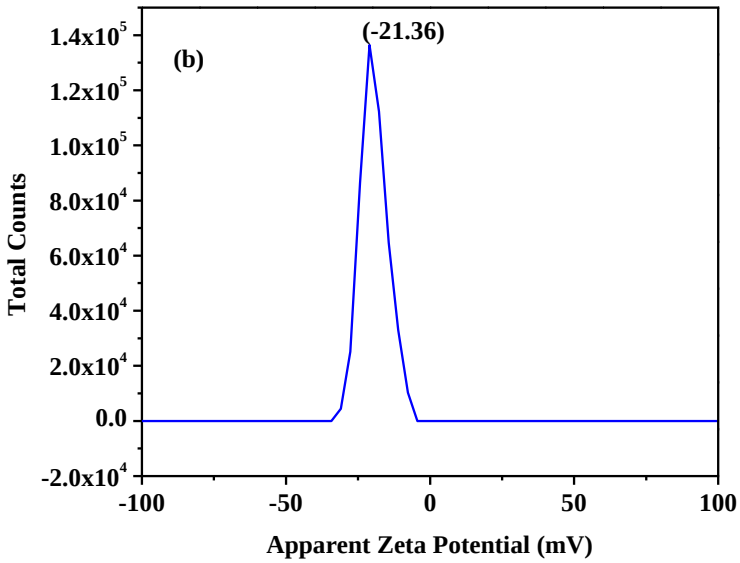


Fig. S4. Zeta potential values of (a) SAGAMA-CuO NPs (b) SAGAMA-Au NPs.

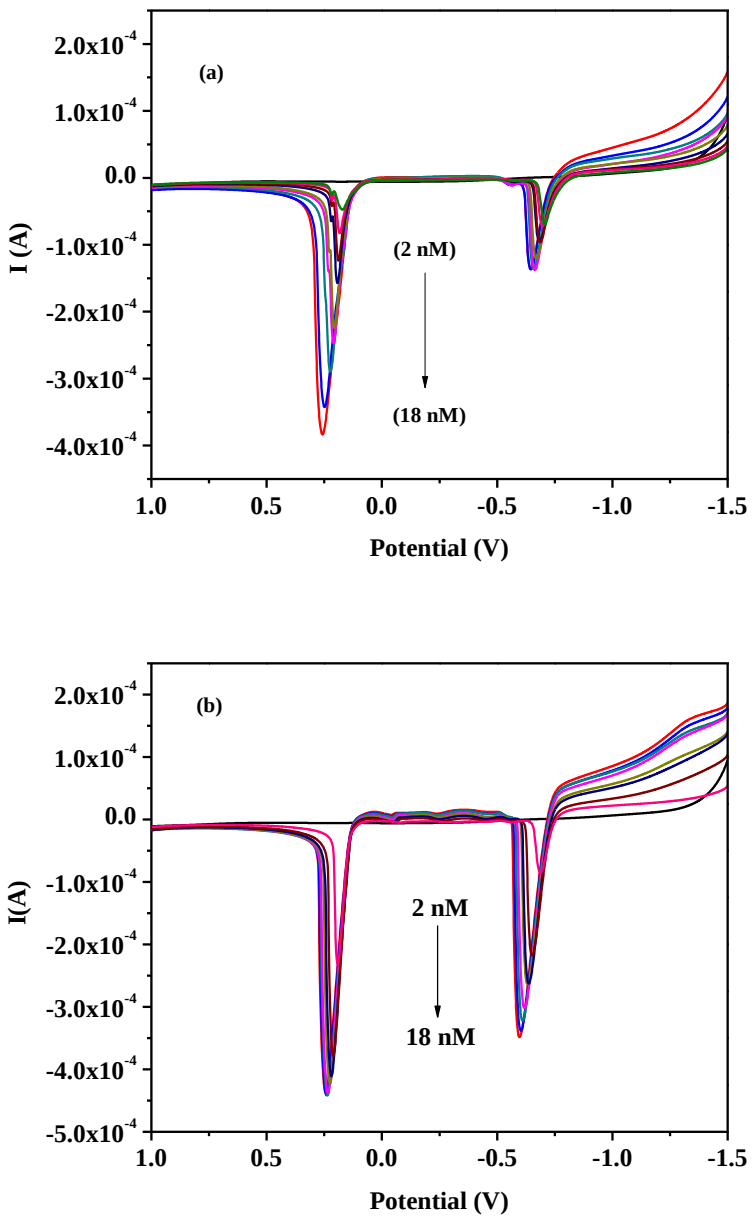


Fig. S5. LSV analysis of (a) SAGAMA-CuO NPs/GCE and (b) SAGAMA-Au NPs/GCE with different concentration of equimolar mixture (2 to 16 nM) of Hg^{2+} and Cd^{2+} ions.

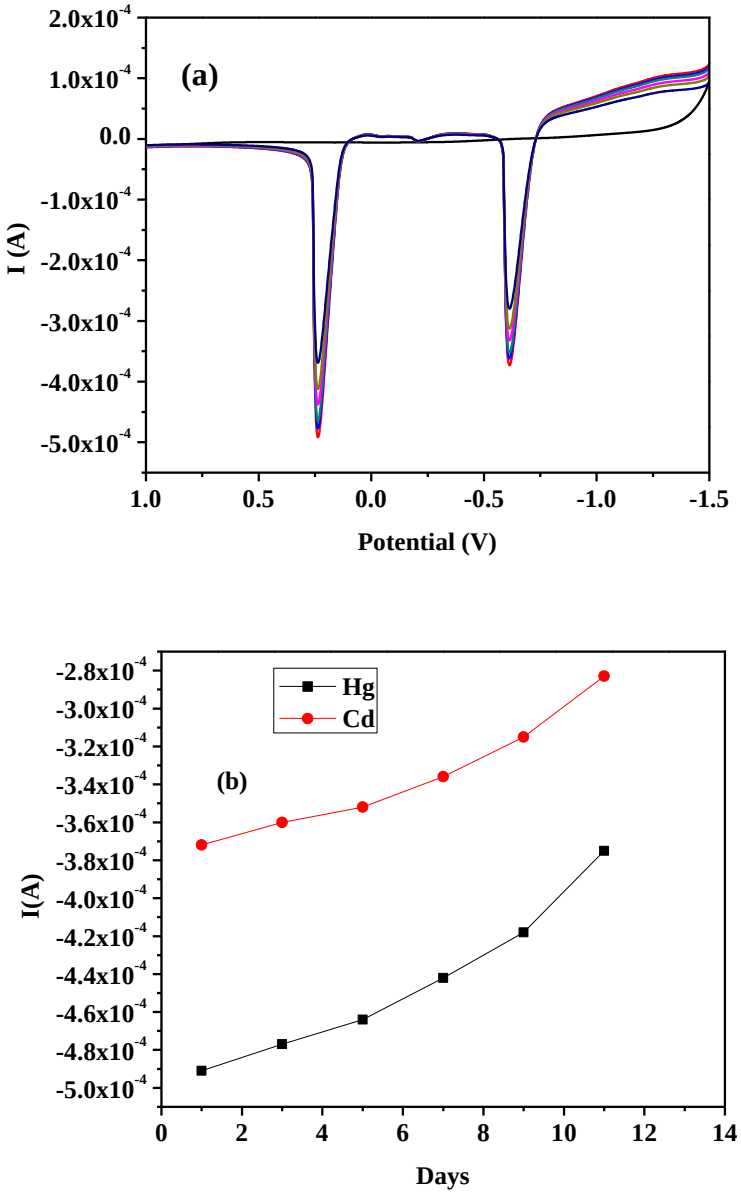


Fig. S6 (a) LSV plot of stability test (b) Calibration curve of cathodic peak current I (A) vs. days

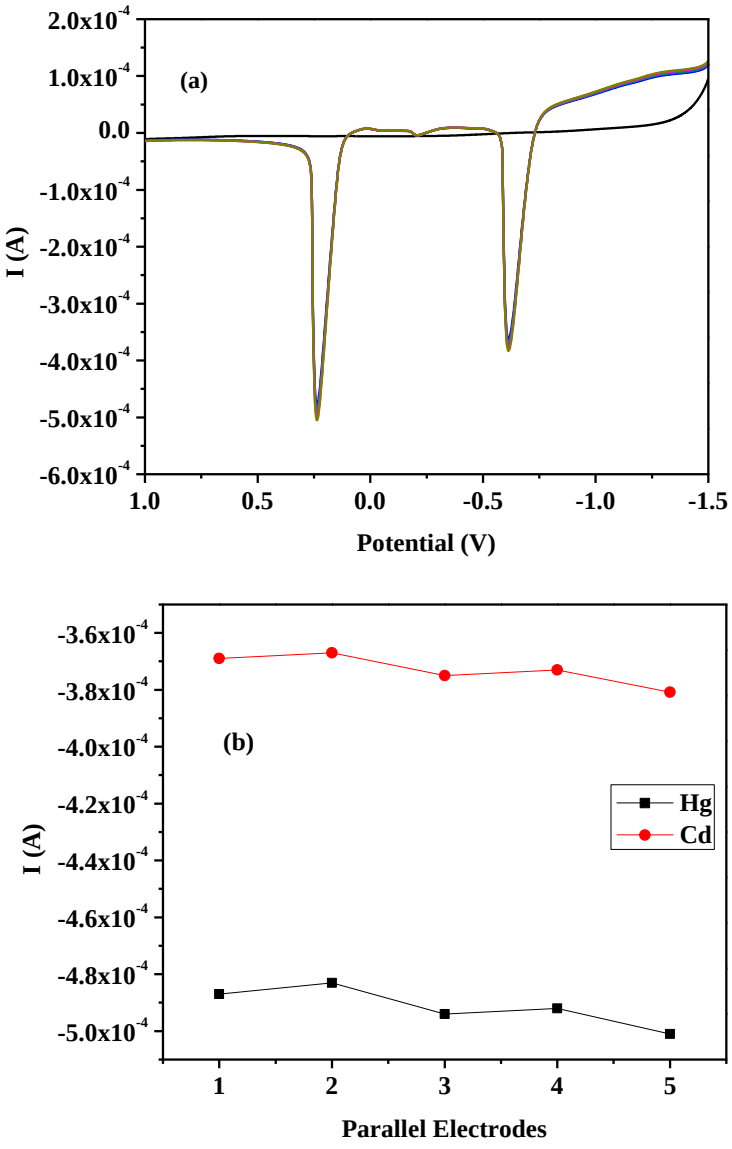


Fig. S7 (a) LSV plot of reproducibility test at SAGAMA-CuO@Au NPS/GCE (b) Calibration curve of cathodic peak current I (A) vs parallel electrodes.

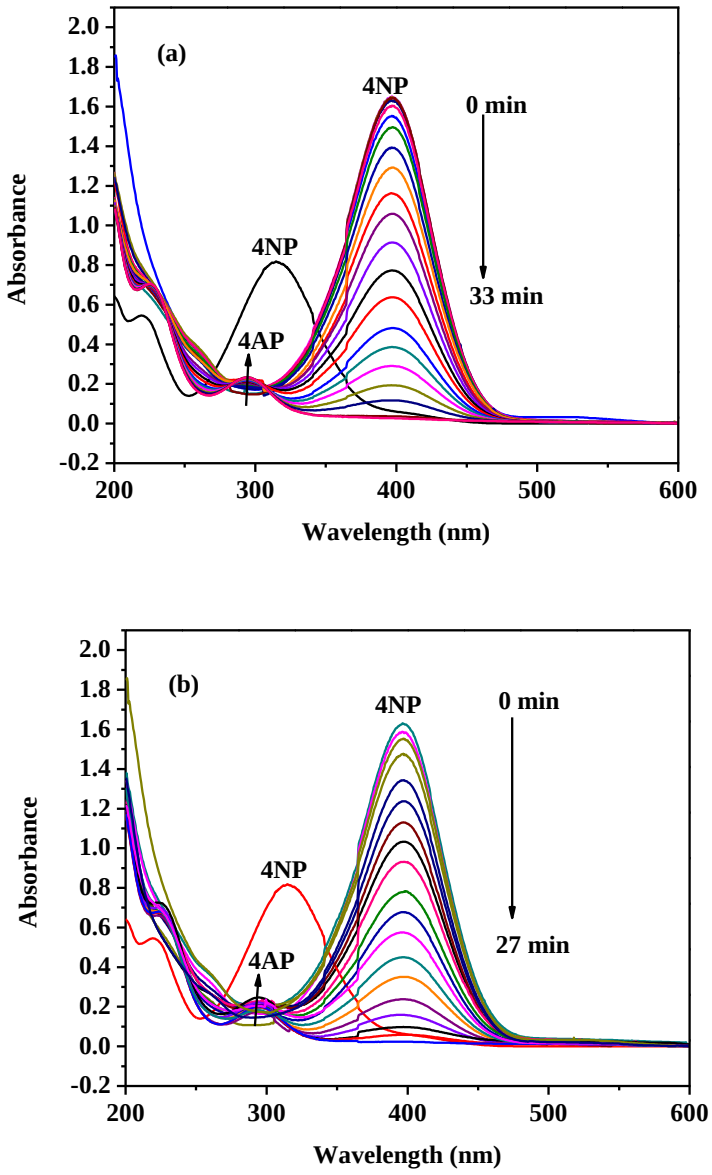


Fig. S8 (a) UV–visible spectra of SAGAMA-CuO NPs (1.17 mg ml^{-1}) for catalytic reduction of 4NP into 4AP in aqueous medium in presence of 0.002 mg ml-1 4NP and 10mM $NaBH_4$. (b) UV–visible spectra of SAGAMA-Au NPs (1.17 mg ml^{-1}) for catalytic reduction of 4NP into 4AP in aqueous medium in presence of 0.002 mg ml-1 4NP and 10mM $NaBH_4$.

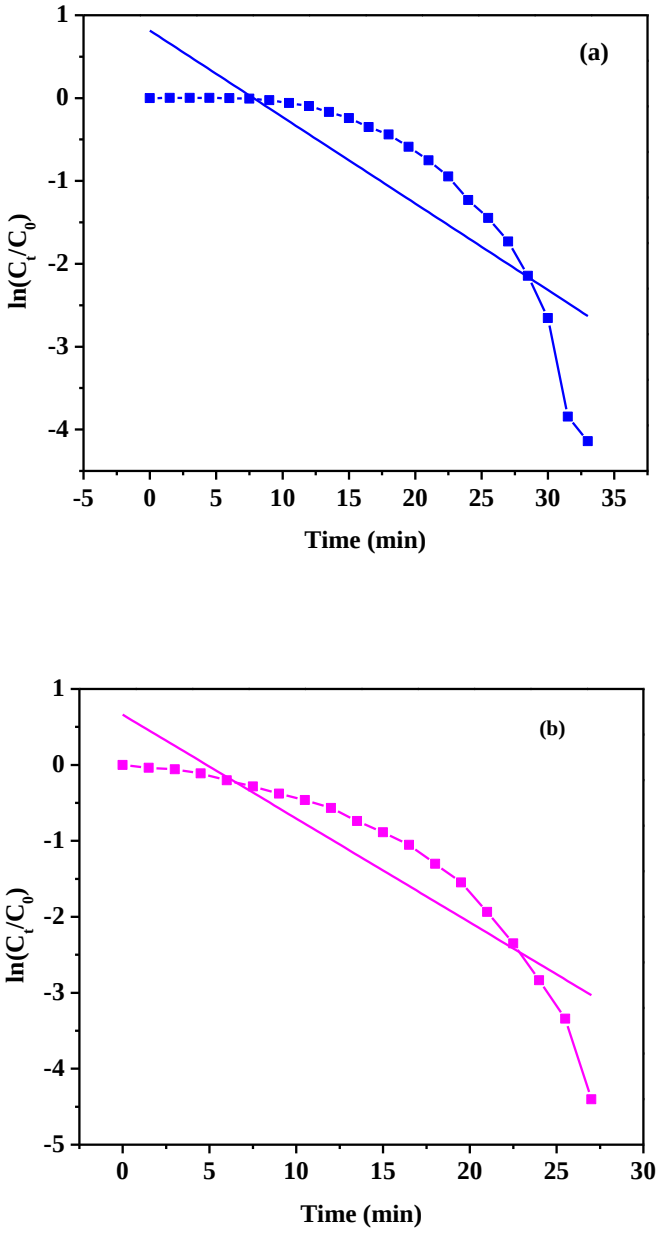


Fig. S9 (a) Plot of ln(Ct/C0) vs. time for catalytic reduction of 4NP (0.002 mg ml^{-1}) into 4Ap in aqueous medium in presence of 1.17 mg ml^{-1} SAGAMA-CuO NPs with 10mM $NaBH_4$. (b) Plot of ln(Ct/C0) vs. time for catalytic reduction of 4NP (0.002 mg ml^{-1}) into 4Ap in aqueous medium in presence of 1.17 mg ml^{-1} SAGAMA-Au NPs with 10mM $NaBH_4$.