Supplementary Materials
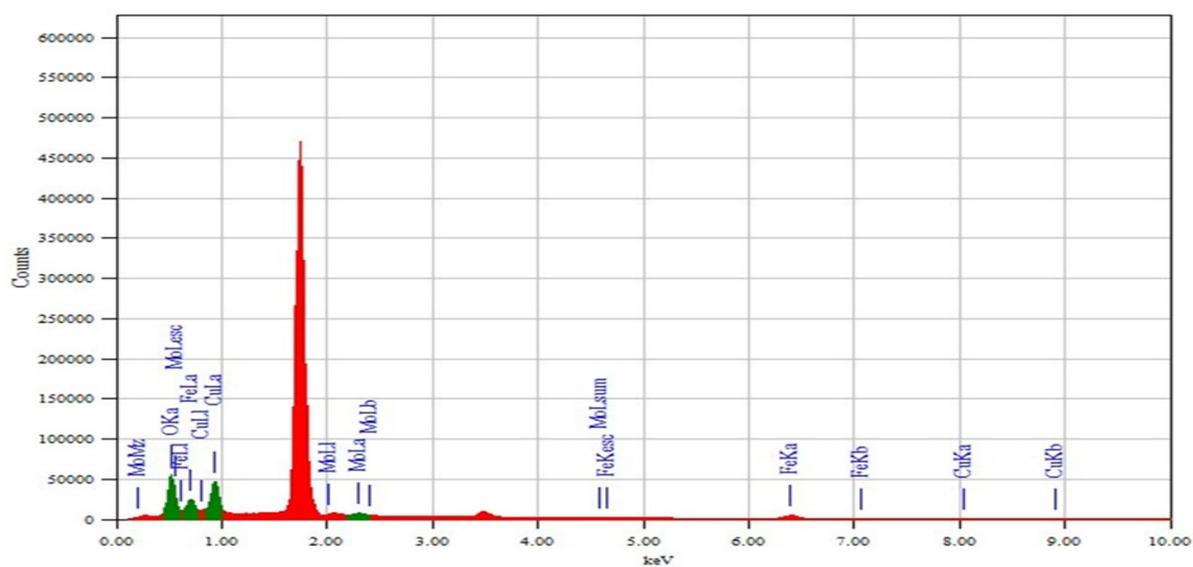
Fig. S1: EDS data of the nanocomposite, $MoO_2 \cdot Fe_3O_4 \cdot CuO$
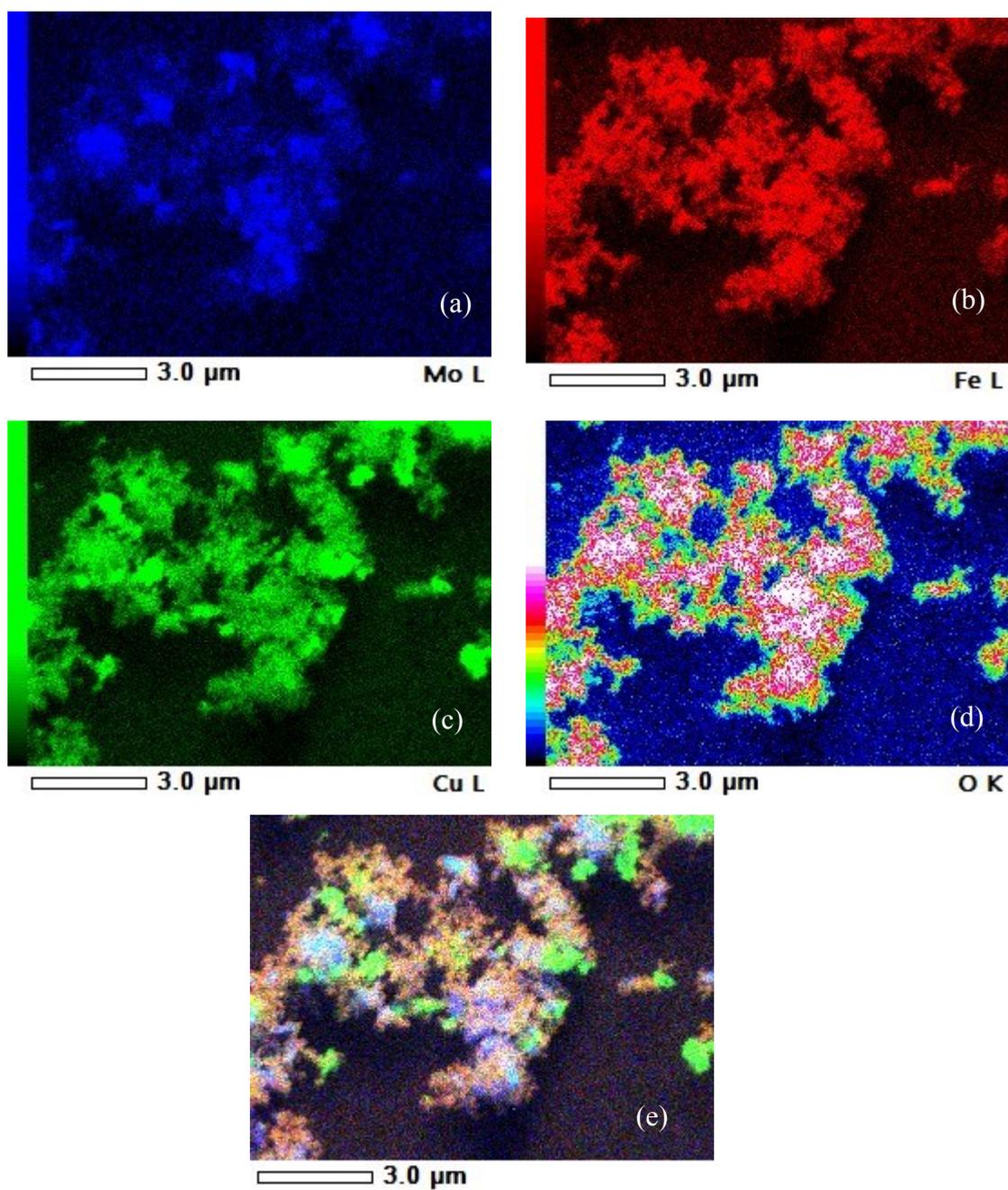
Fig. S2: SEM-EDS mapping of $MoO_2 \cdot Fe_3O_4 \cdot CuO$ (a) Molebdenum, (b)Iron, (c) Copper, (d) Oxygen, and (e) is the Overlap of all of them
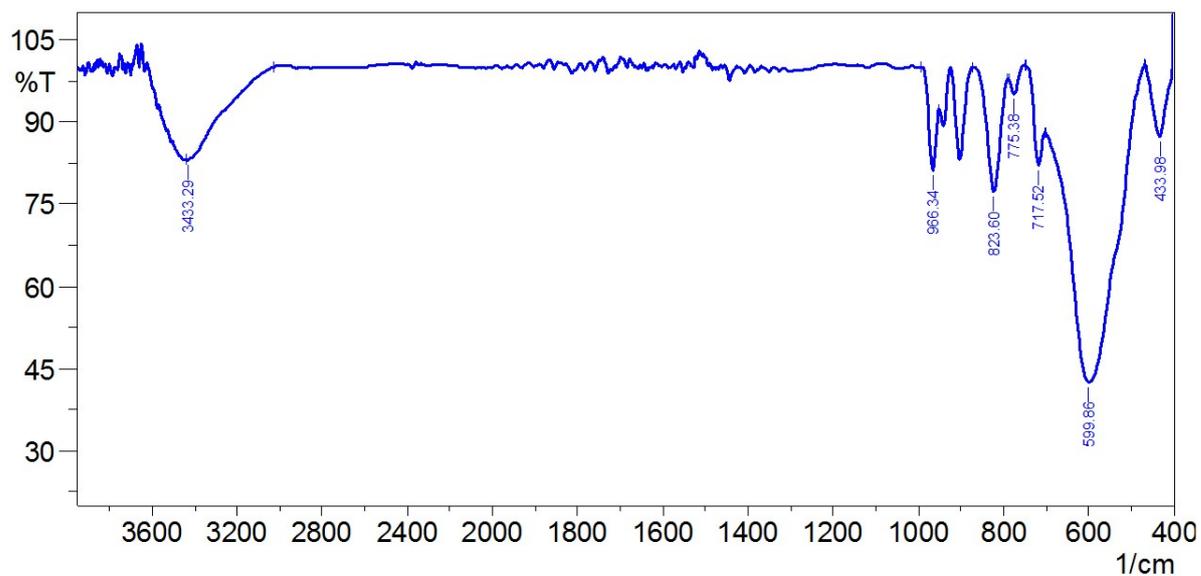
Fig. S3: FTIR spectra of synthesized nanocomposite, $MoO_2 \cdot Fe_3O_4 \cdot CuO$
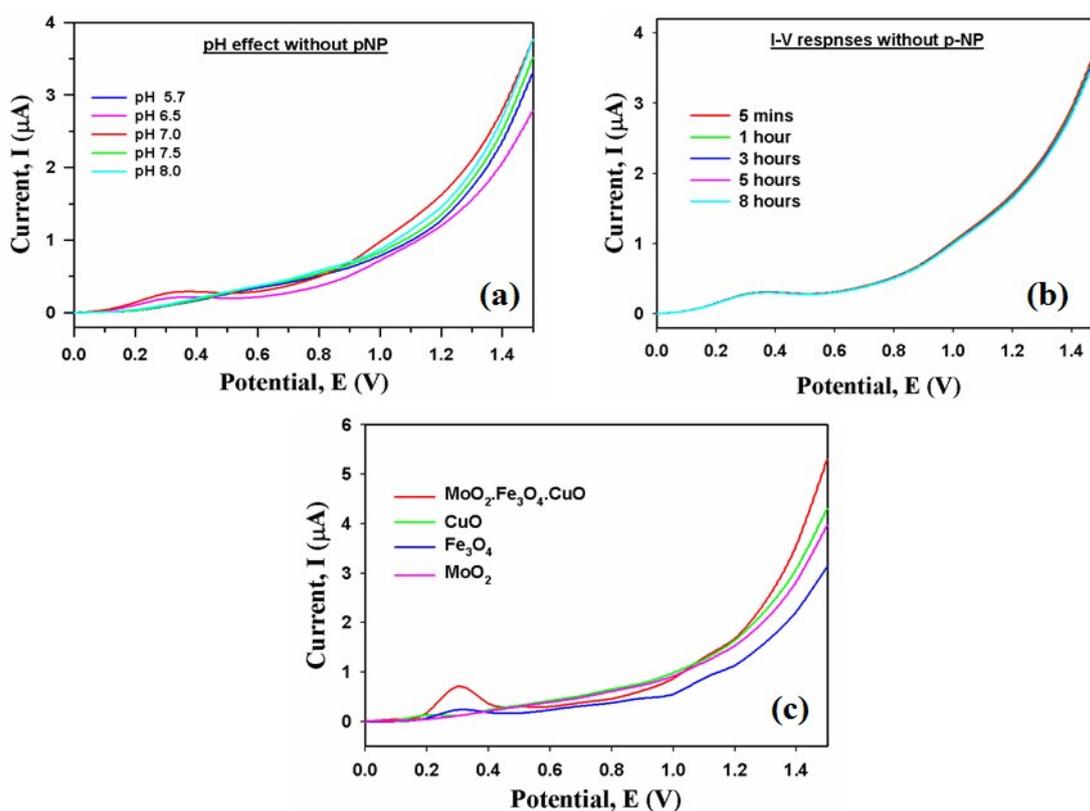
Fig. S4. Optimization of sensor in absence of target p-NP in identical conditions by electrochemical method. (a) The signal intensities of the $MoO_2 \cdot Fe_3O_4 \cdot CuO$/GCE sensor probe at different pH values (Absence of p-NP); (b) The signal intensities of the $MoO_2 \cdot Fe_3O_4 \cdot CuO$/GCE sensor probe at different times (Absence of p-NP), and (c)

Various single metal oxides (CuO, Fe_3O_4, and MoO_2) comparative tests were investigated in identical conditions.

Table S1: EDS data of $MoO_2 \cdot Fe_3O_4 \cdot CuO$

Element	(keV)	Mass%	Sigma	Atom%	K
O K	0.525	22.22	0.05	51.85	31.3547
Fe L	0.705	46.15	0.2	30.85	36.1367
Cu L	0.93	25.2	0.08	14.8	26.8511
Mo L	2.293	6.43	0.06	2.5	5.6575
Total		100		100	