Supplementary information

Table S1. ICP results of the as-synthesized catalysts.

samples	Molar concentration of Cu (μm/mL)	Molar concentration of S (μm/mL)
A-180	0.135	0.076
A-U	0.460	0.270

Table S2. Pseudo-first order rate constants *k* of the Cu_7S_4, Cu_7S_4 / rGO nanocomposites for the catalytic reduction of MG.

Catalyst	***k* (min^{-1})**	**R^2**
A-C	0.05246	0.98019
A-N	0.05619	0.98694
A-U	0.05592	0.98405
A-180	0.0498	0.97795
Cu_7S_4	0.01895	0.97992

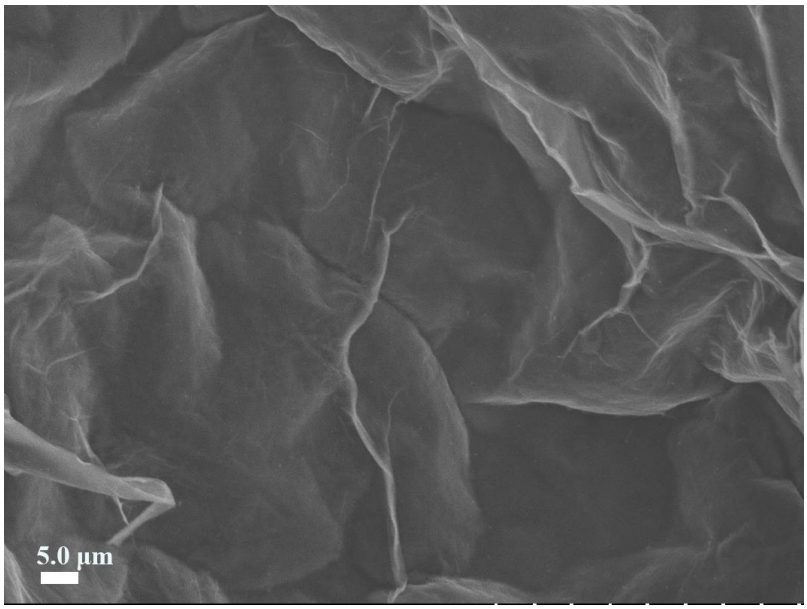

Fig. S1. SEM image of the as-prepared rGO.

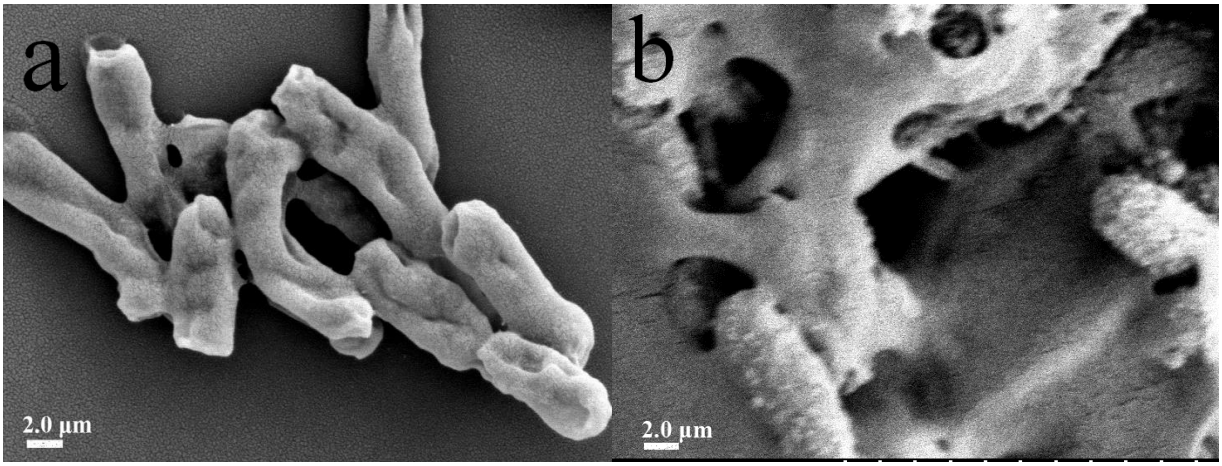

Fig. S2. (a) SEM image of *S. oneidensis* MR-1; (b) SEM image of the formation process of the Cu_7S_4/rGO composite.

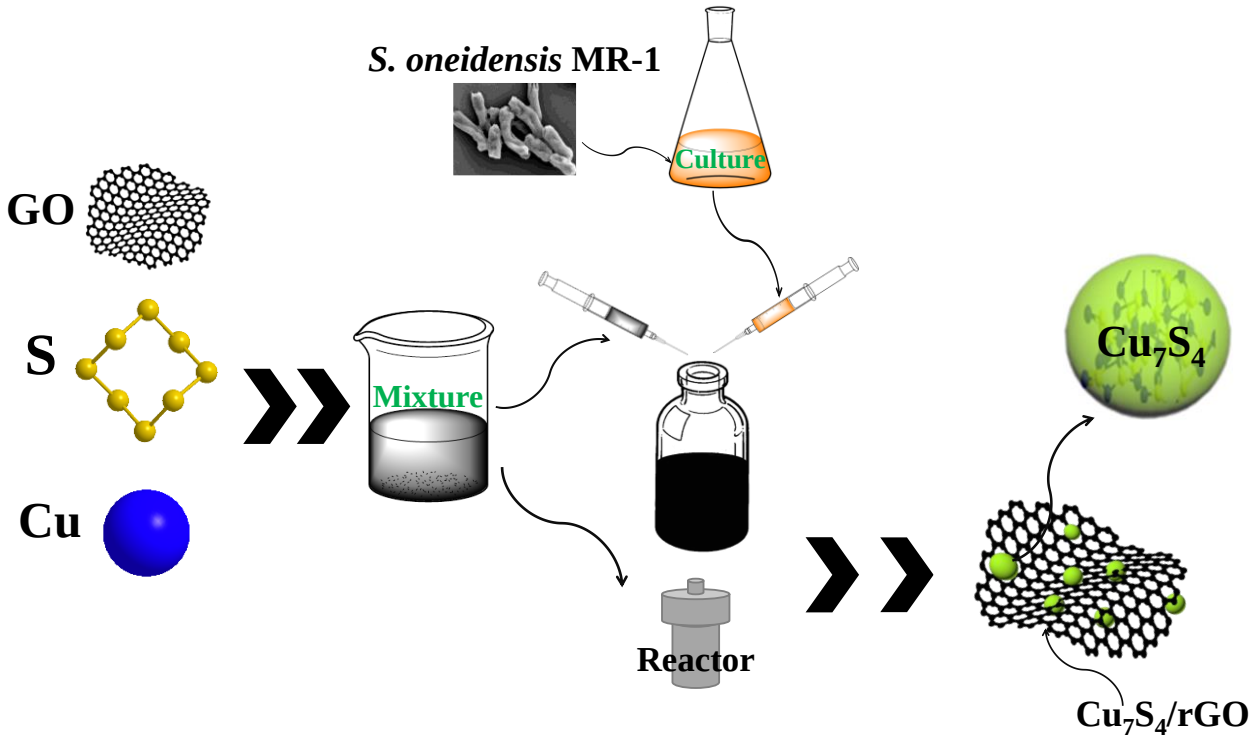

Fig. S3. Illustration of the synthetic ways of Cu_7S_4 / rGO.

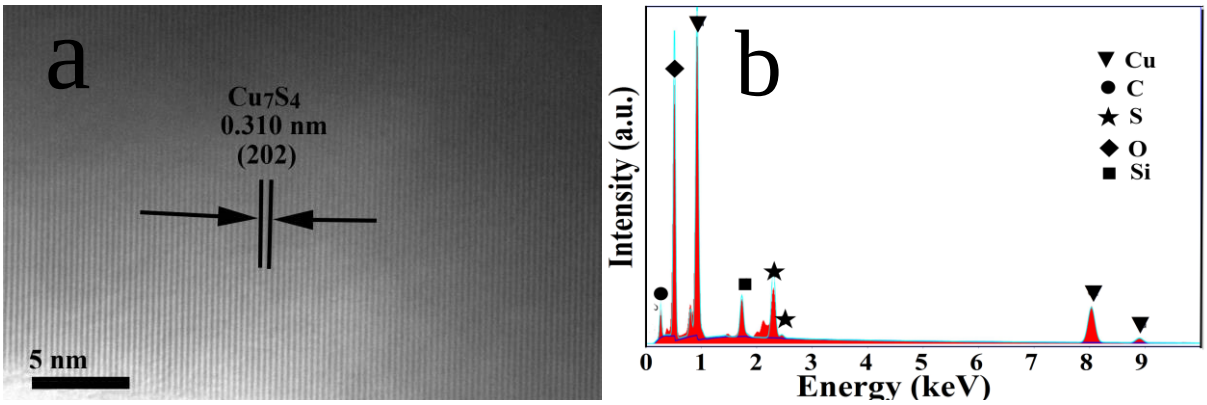

Fig.S4. (a) HRTEM image of the as-prepared Cu_7S_4; (b) EDS of image of the as-prepared Cu_7S_4.

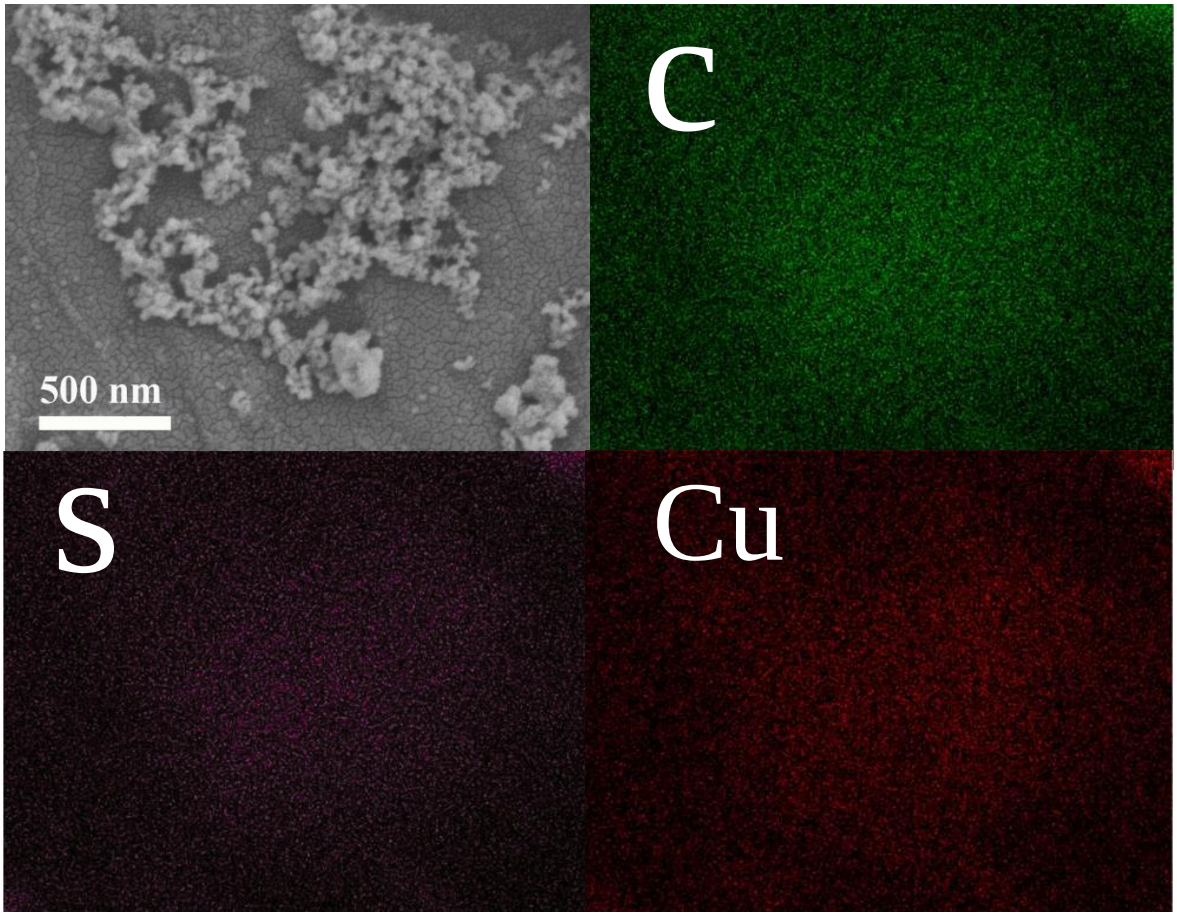

Fig. S5. EDS elemental mapping images of C, S, and Cu for the Cu_7S_4 / rGO.

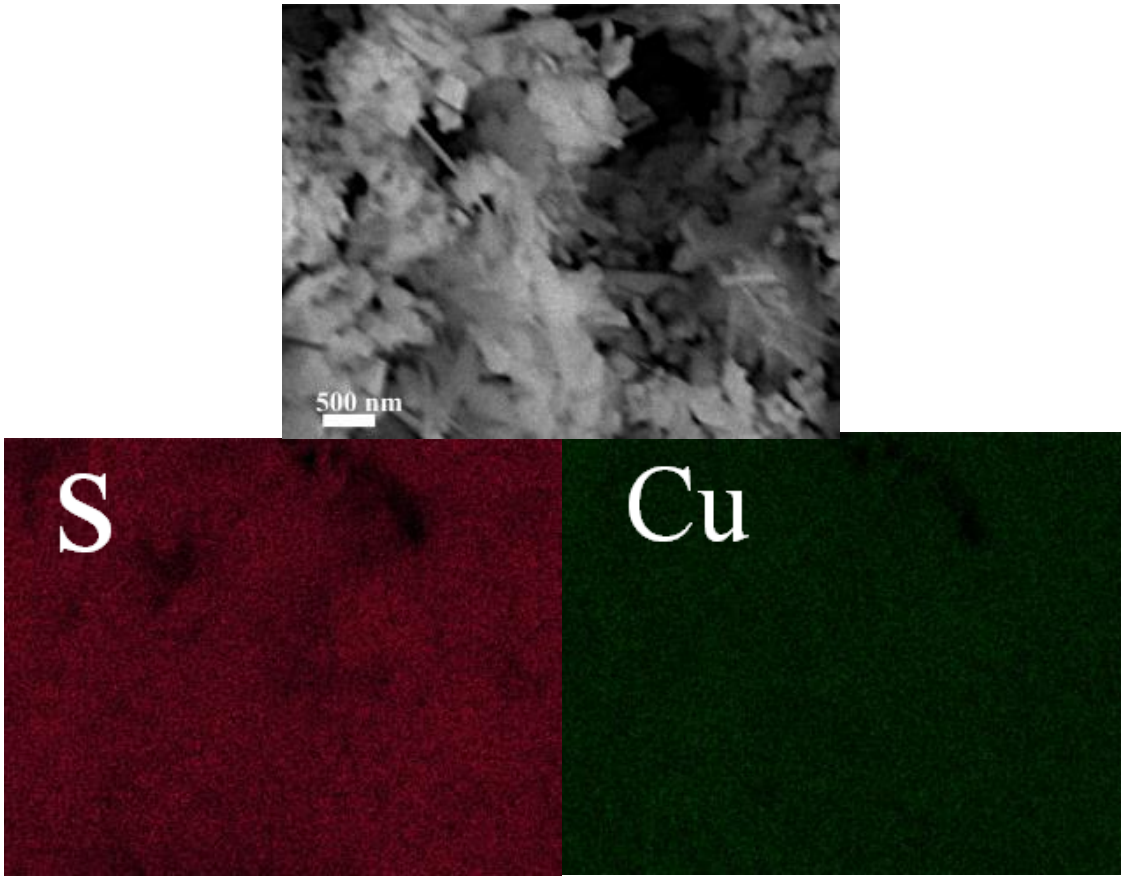

Fig. S6. EDS elemental mapping images of Si, S, and Cu for the Cu_7S_4.

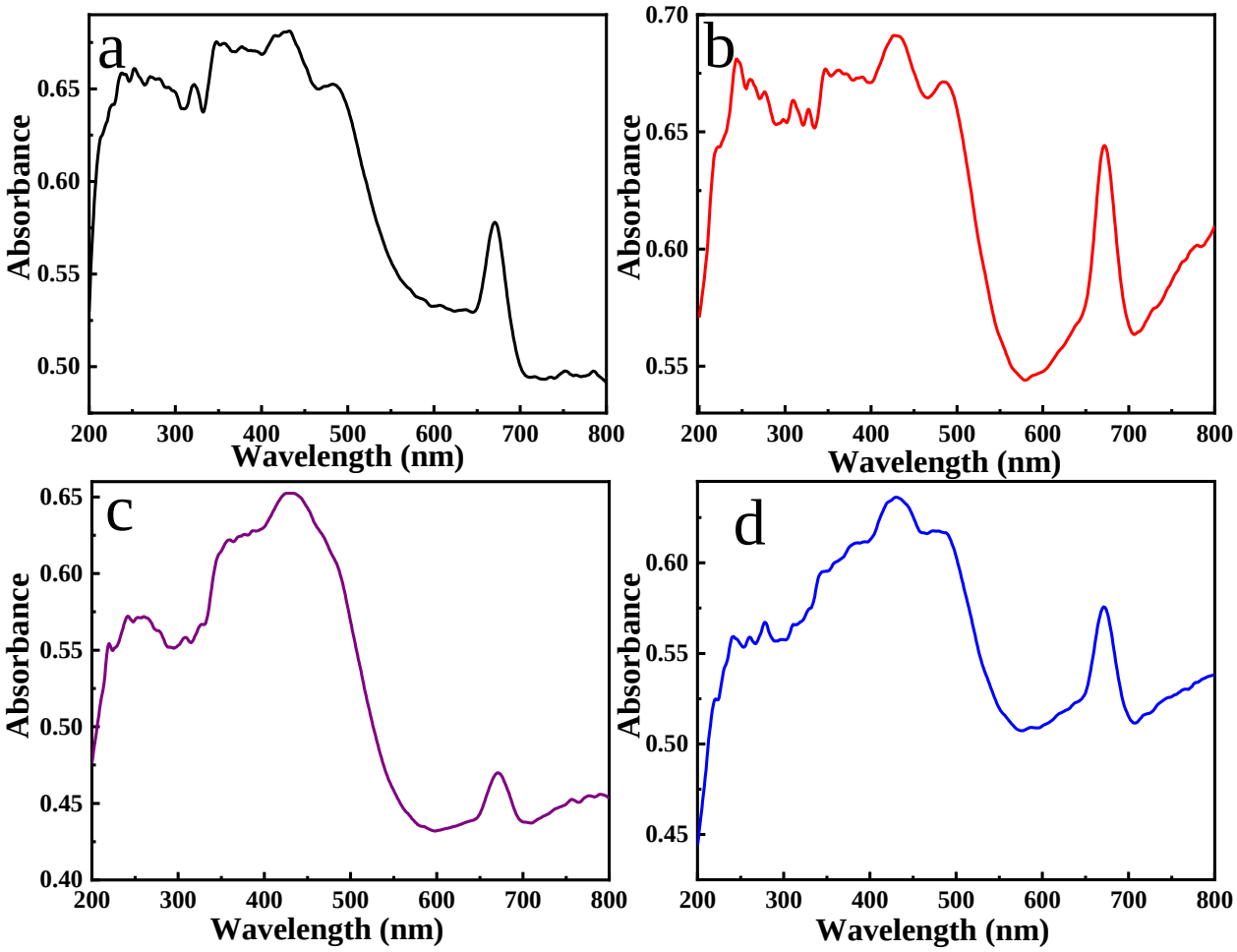

Fig. S7. UV–vis absorption spectra of the as-synthesized catalysts (a) A-180; (b)A-140; (c) A-U and (d) A-N.

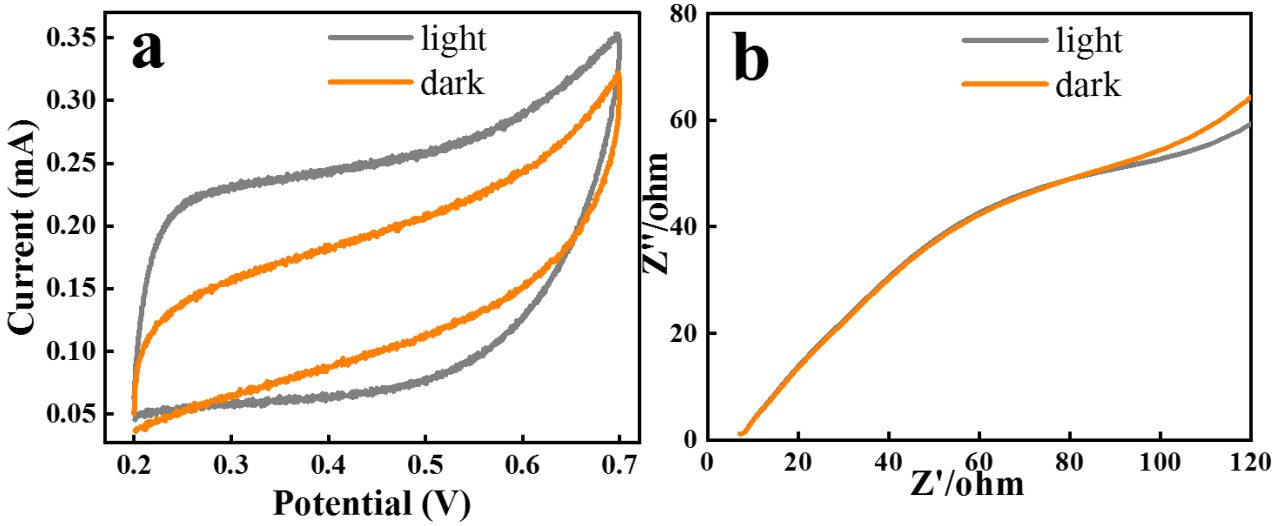

Fig. S8. (a) CV curves ; (b) EIS spectra of the A-N under light and dark.

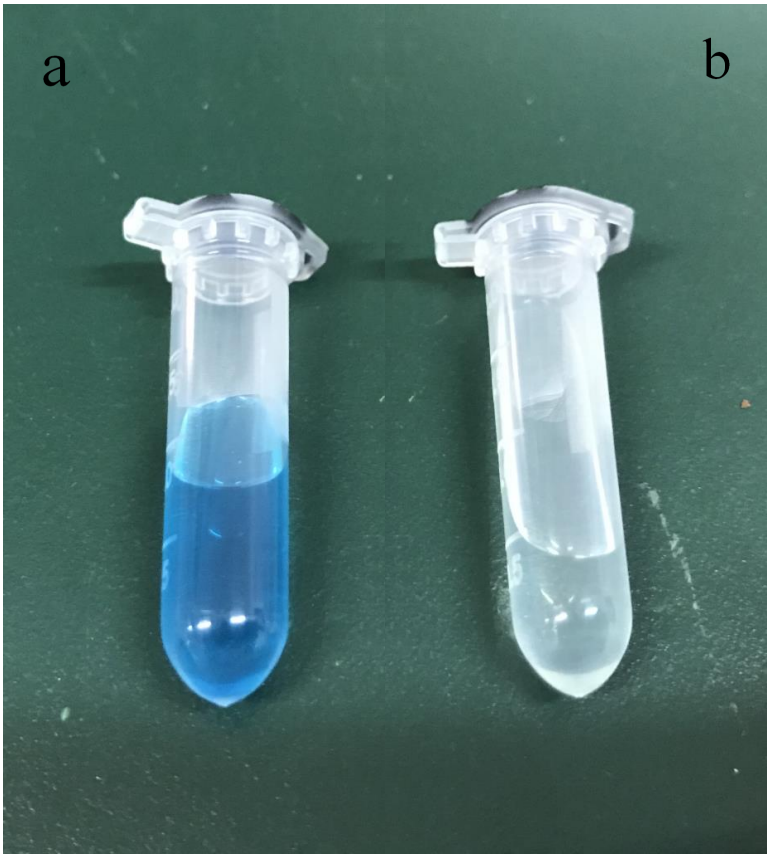

Fig. S9. The color change during MG degradation (a)before; (b) after.

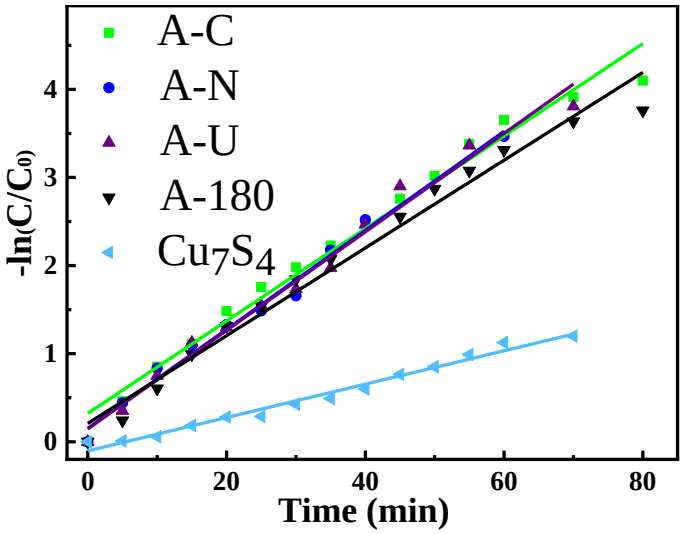

Fig. S10. Pseudo-first-order kinetics of MG reduction using Cu_7S_4, Cu_7S_4 / rGO nanocomposites.

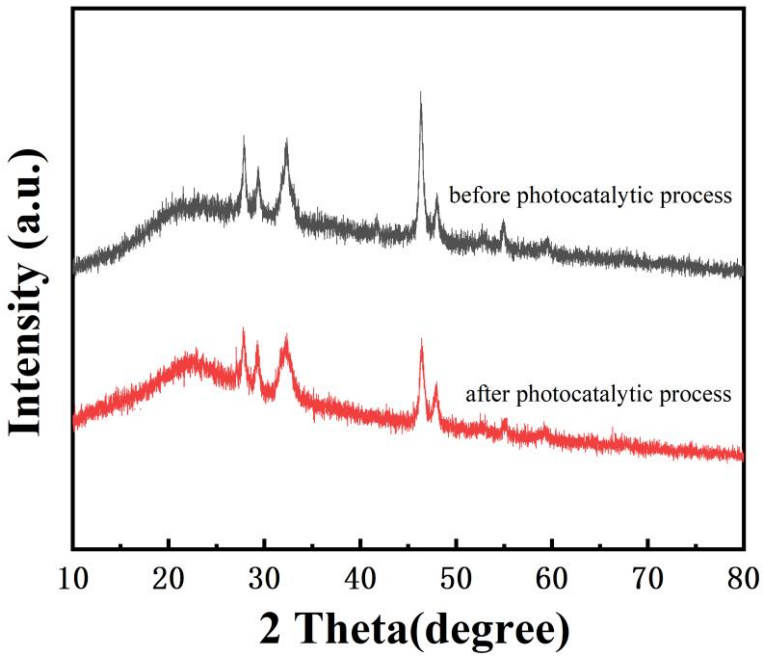

Fig. S11. XRD patterns of the Cu_7S_4/rGO nanocomposites before and after photocatalytic test.