Supplementary Material

As-prepared Cu_2O NPs was examined in XPS and elements of copper, oxygen and carbon were found in the survey scan (Fig. S1a). The main peak of Cu LMM Auger transition spectrum at 570.1 eV (Fig. S1b) verified the existence of Cu^+, meanwhile, Cu^0 of 568 eV was not observed (Gong et al., 2018). Consistently, the monovalent Cu^+ (binding energy 932.6 eV and 952.2 eV) was identified in the Cu 2p spectrum (Fig. S1c) but THE divalent Cu^{2+} (934.4 eV and 954.0 eV) was not observed (Matías et al., 2017). Oxygen element both as the lattice oxygen O_A (530.5 eV) and chemisorbed oxygen O_B (531.7 eV) was found in O 1s spectrum (Fig. S1d) (Li et al., 2017). Attached carbon was traced mainly from glucose in the preparation method.

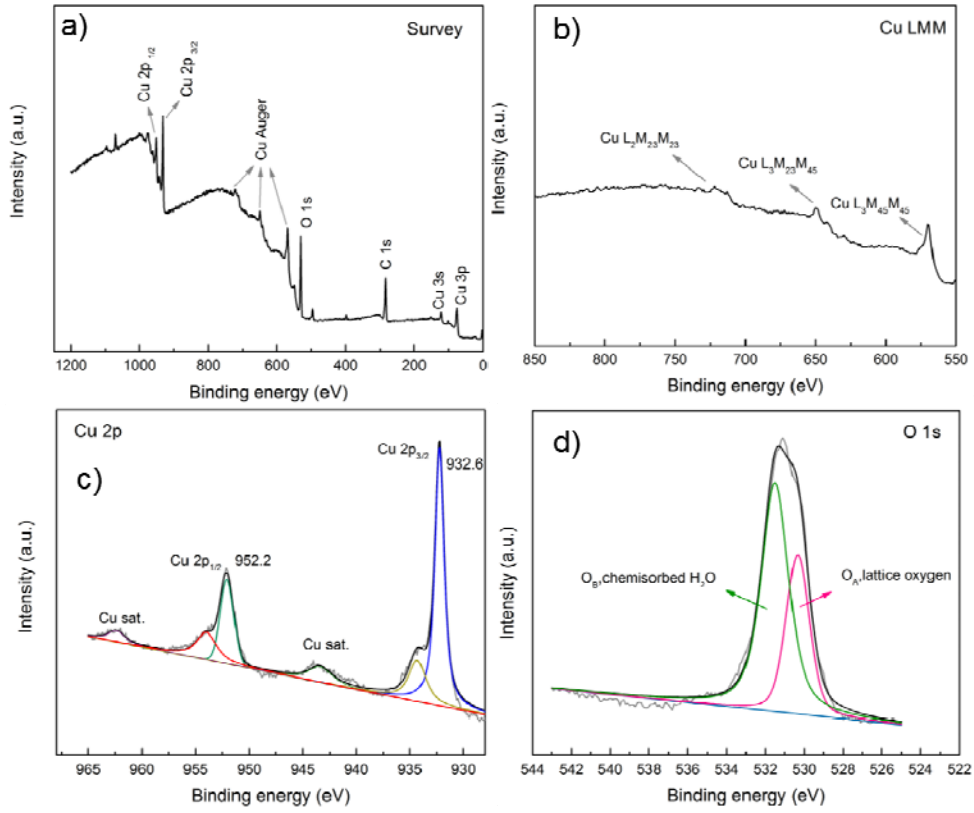

Fig. S1 XPS analysis of Cu_2O nanocrystals obtained at 3-min reaction time: (a) total survey, (b) Cu LMM, (c) Cu 2p and (d) O 1s spectra.

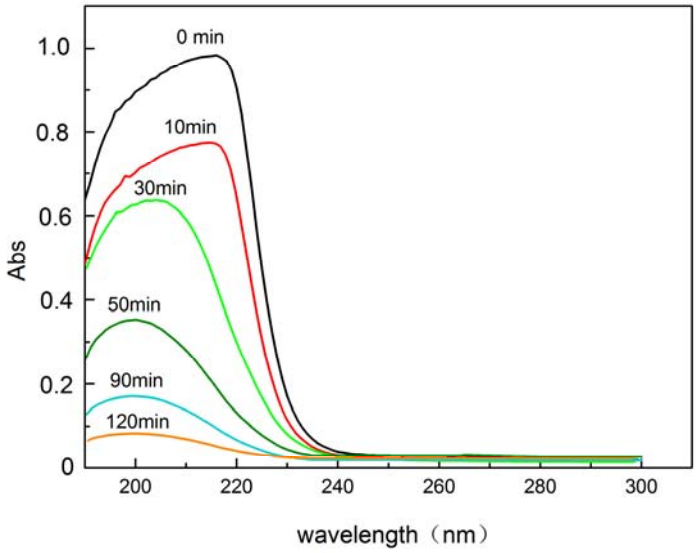

Fig. S2 UV-Vis spectra of the DMAc wastewater. (same multiple of dilution).

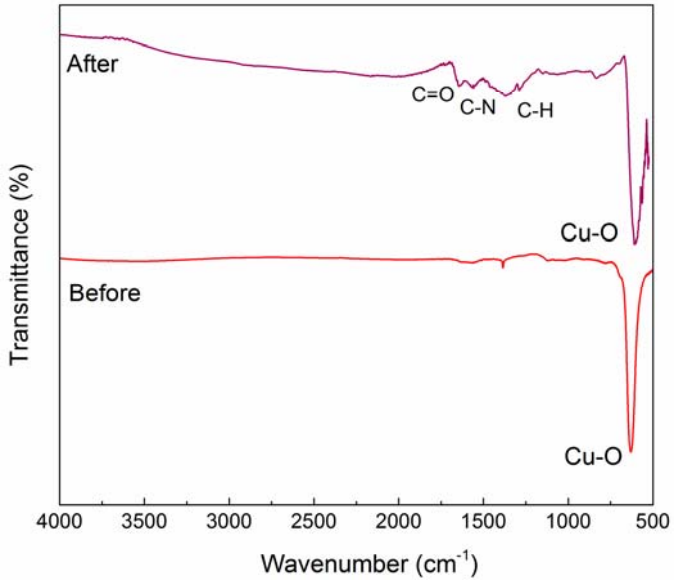

Fig. S3 FTIR spectra of Cu_2O NPs before and after 5 cycles tests.

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