Synthesis and characterizations of a novel CNT-$FeNi_3$/DFNS/Cu (II) magnetic nanocomposite for photocatalytic degradation of tetracycline in wastewater

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Supporting Information

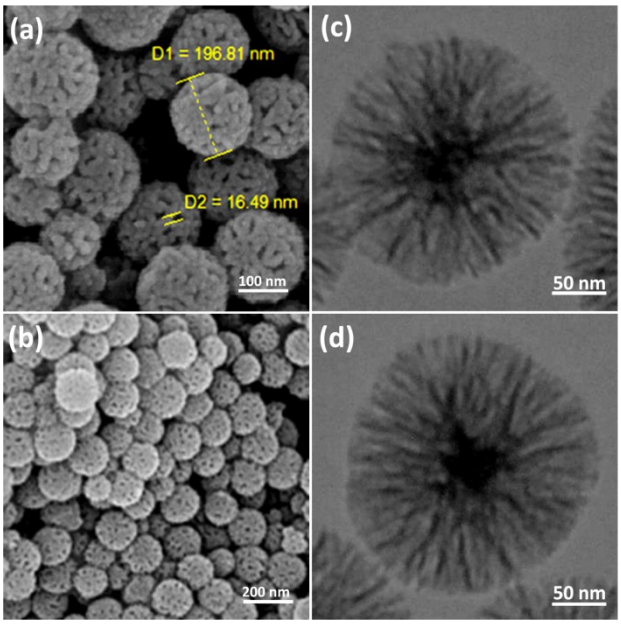

Figure S1 TEM images of $FeNi_3$/DFNS MNPs (a); $FeNi_3$/DFNS/Cu (II) complexes MNPs (b); FE-SEM images of $FeNi_3$/DFNS MNPs (c); $FeNi_3$/DFNS/Cu (II) complexes MNPs (d).

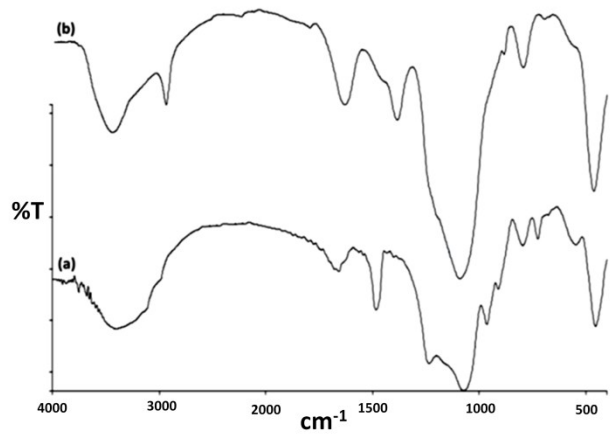

Figure S2 FTIR spectra of (a) $FeNi_3$/DFNS MNPs, and (b) $FeNi_3$/DFNS/PEI MNPs.

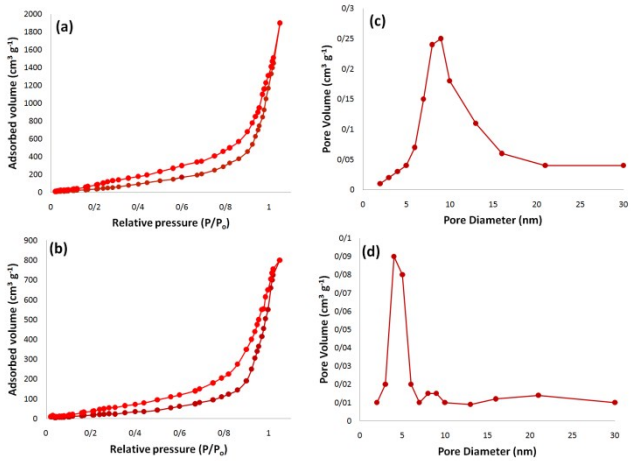

Figure S3 adsorption-desorption isotherms of the $FeNi_3$/DFNS NPs (a); $FeNi_3$/DFNS/Cu (II) complexes MNPs (b); and BJH pore size distributions of the $FeNi_3$/DFNS NPs (c); $FeNi_3$/DFNS/Cu (II) complexes MNPs (d).

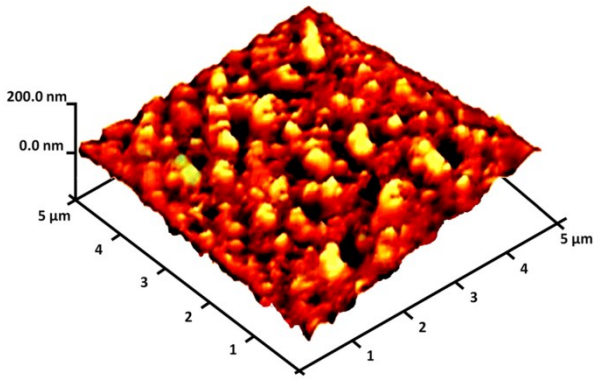

Figure S4 Three-dimensional of AFM images of $FeNi_3$/DFNS/Cu (II) complexes MNPs.

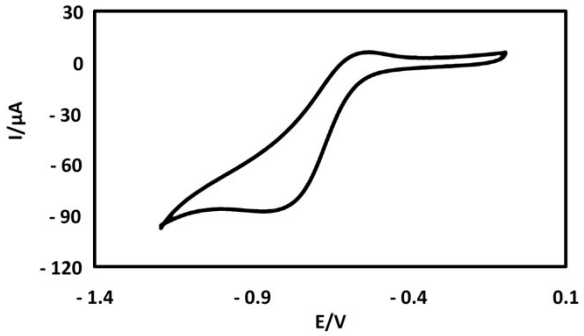

Figure S5 Cyclic voltammogram of copper(II) complex.

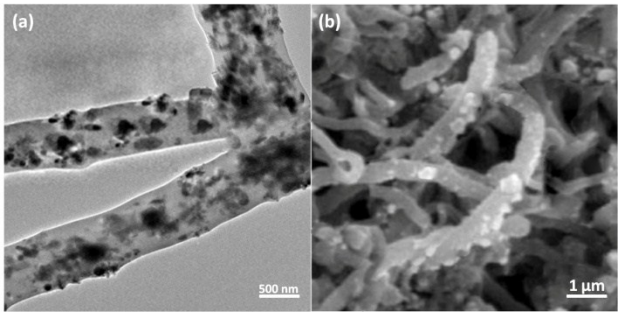

Figure S6 SEM images of a) CNT-$FeNi_3$/DFNS/Cu MNPs, and TEM images of b) CNT-$FeNi_3$/DFNS/Cu MNPs.

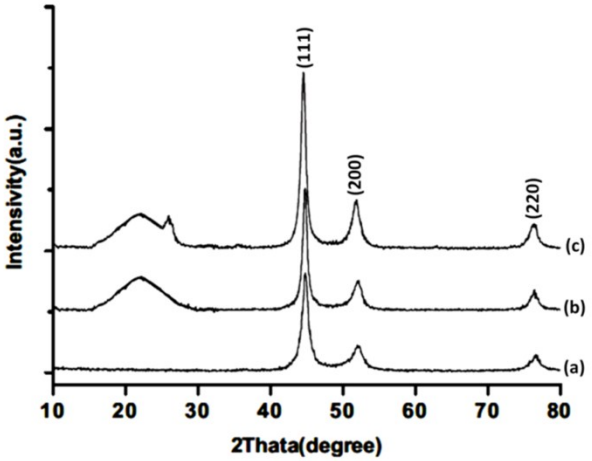

Figure S7 XRD analysis of (a) $FeNi_3$, (b) $FeNi_3$/DFNS/Cu (II), and (c) CNT-$FeNi_3$/DFNS/Cu (II) complexes MNPs.

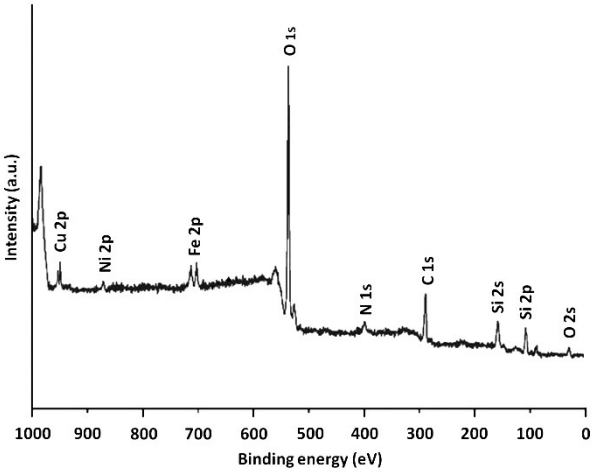

Figure S8 XPS spectra of CNT-$FeNi_3$/DFNS/Cu MNPs.

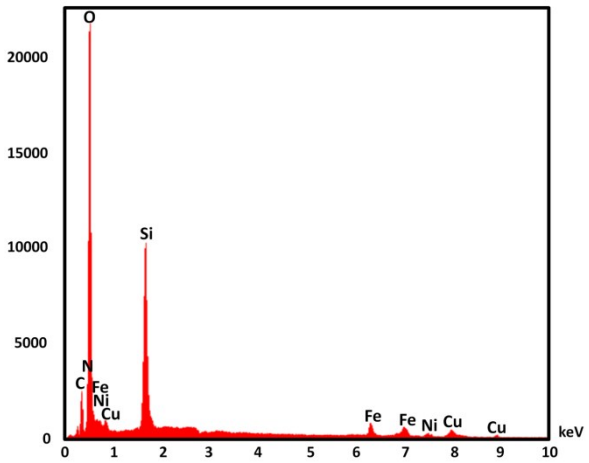

Figure S9 The EDX spectra of CNT-$FeNi_3$/DFNS/Cu MNPs.

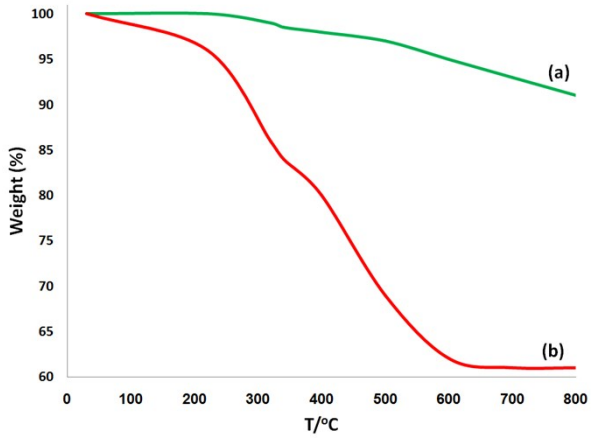

Figure S10 TGA curve of (a) raw CNTs, and (b) CNT-$FeNi_3$/DFNS/Cu MNPs.

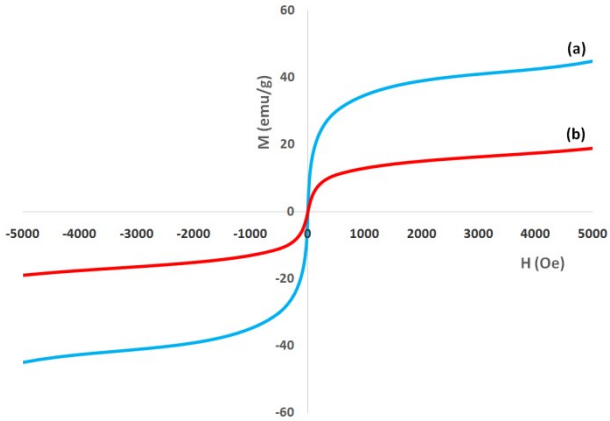

Figure S11 Room-temperature magnetization curves of (a) $FeNi_3$/DFNS/Cu (II), and (b) CNT-$FeNi_3$/DFNS/Cu (II) complexes MNPs.

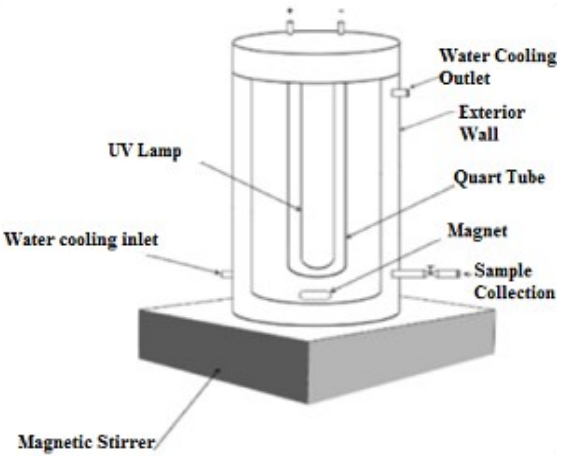

Figure S12 Schematic of the photocatlytic reactor.

Figure S13 Catalytic separations by magnetic attraction.

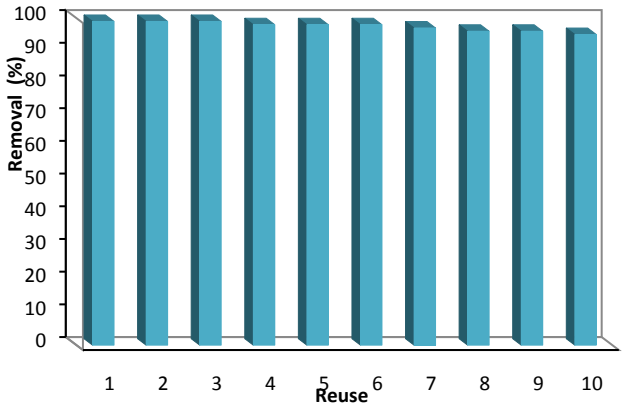

Figure S14 The reusability of catalysts for degradation of TC.

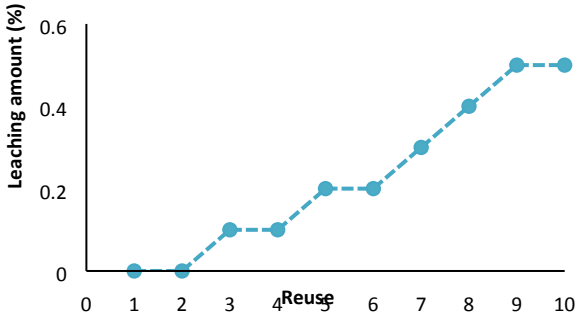

Figure S15 Recyclability of the catalyst for degradation of TC.