

## Photoluminescence and photocatalytic properties of MWCNT decorated with Fe doped ZnO nanoparticles

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### 1. Influence of Fe doping degree on the photocatalytic performance of ZnO nanoparticles

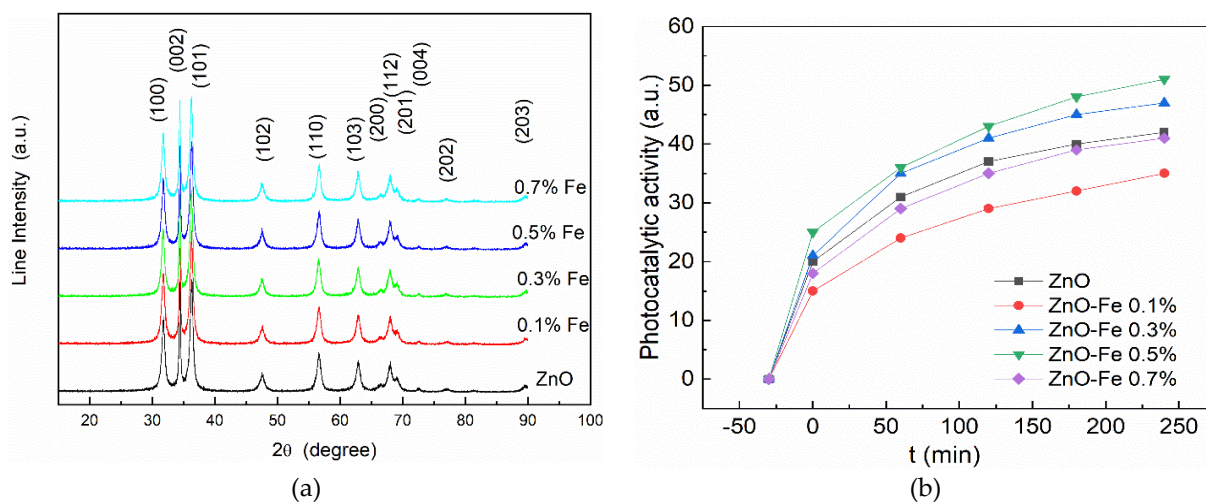


Figure S1 (a) XRD of  $\text{Zn}_{1-x}\text{Fe}_x\text{O}$  nanoparticles and (b) the photocatalytic activity of the samples

2. Size distribution of ZF0.5% nanoparticles evaluated by TEM

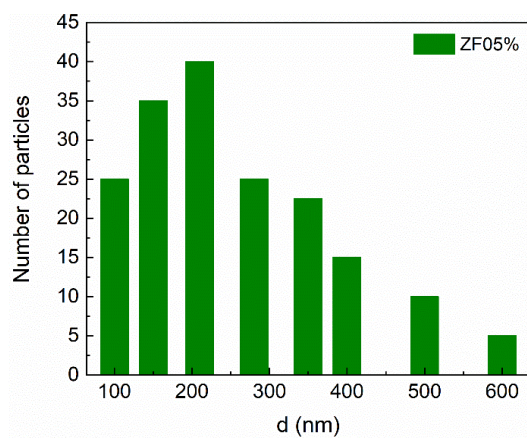


Figure S2. Size distribution of ZF0.5% nanoparticles estimated from TEM images

3. FT-IR spectra of CZF1-5 before and after photodegradation

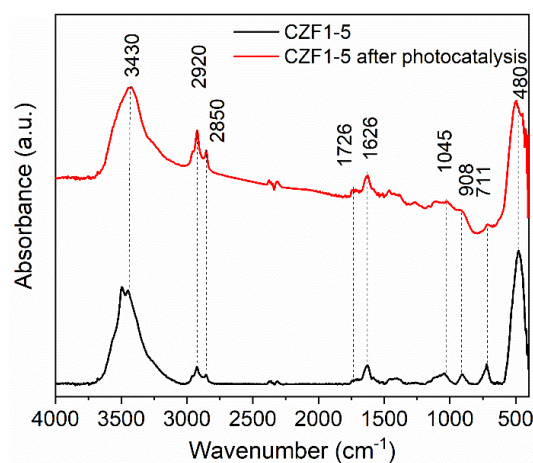


Figure S3. FT-IR spectra of CFZ1-5 before and after photodegradation

Table S1. FT-IR band assignment

FT-IR bands (cm <sup>-1</sup> )	Band assignment
3430	O-H
2920/ 2850	C-H stretching vibrations
1726	C = O
1626	C = C
1045	C-O stretching vibration
908	Zn-O-C bending vibration
711	hexagonal carbon in pristine MWCNTs
480	Zn-O

#### 4. HPLC-MS Characterization

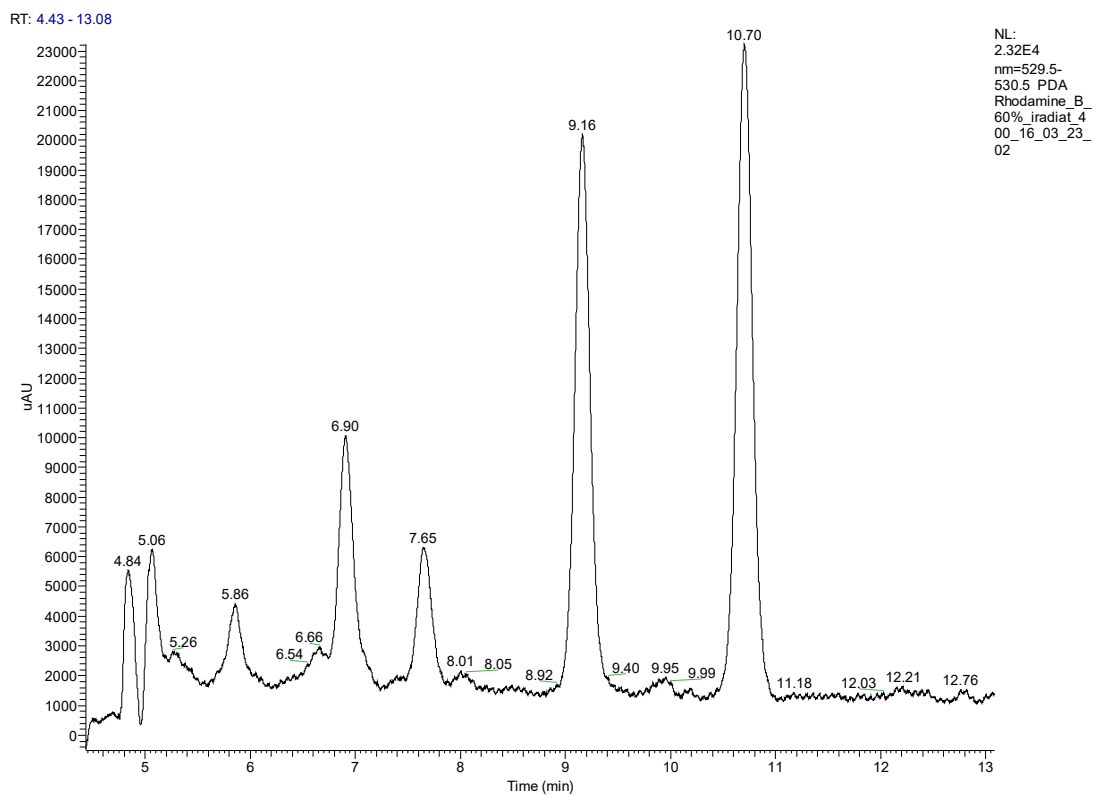
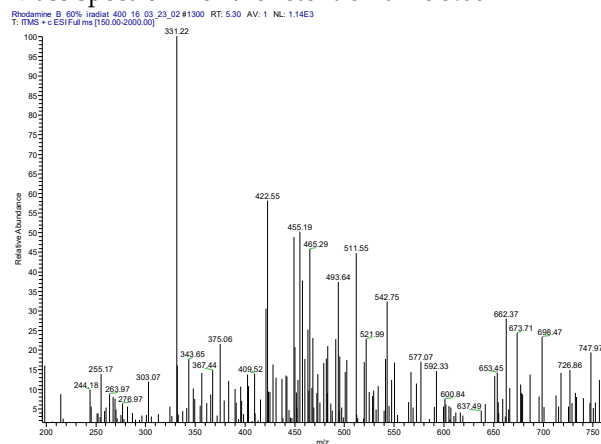
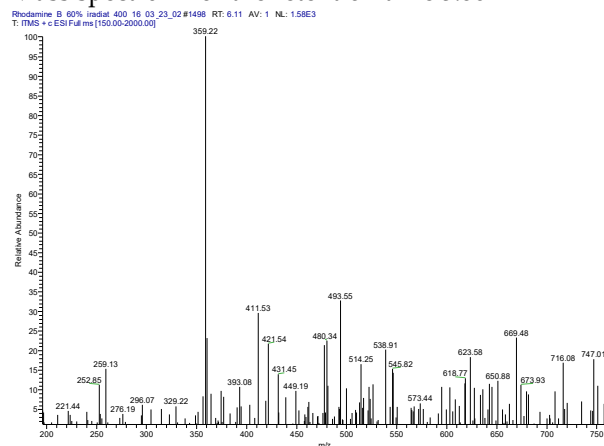


Figure S4. HPLC-MS Chromatogram of RhB solution in the presence of CZF1-5 sample after 150min UV light irradiation

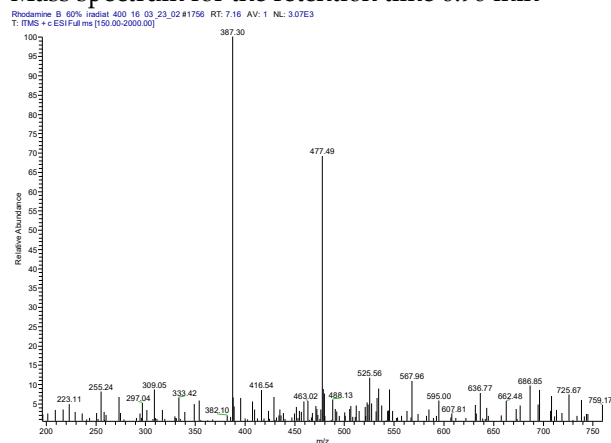
### Mass spectrum for the retention time 5.06 min



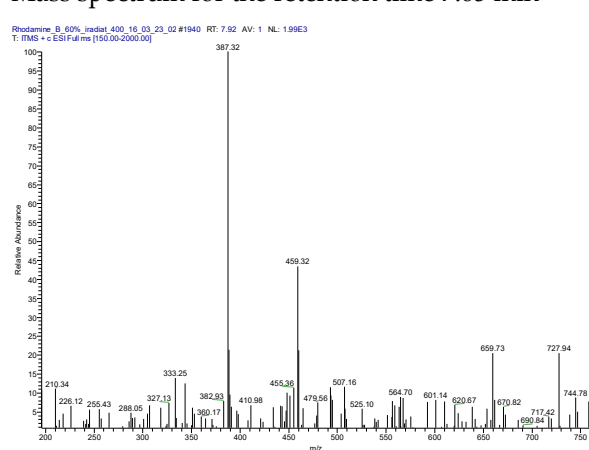
### Mass spectrum for the retention time 5.86 min



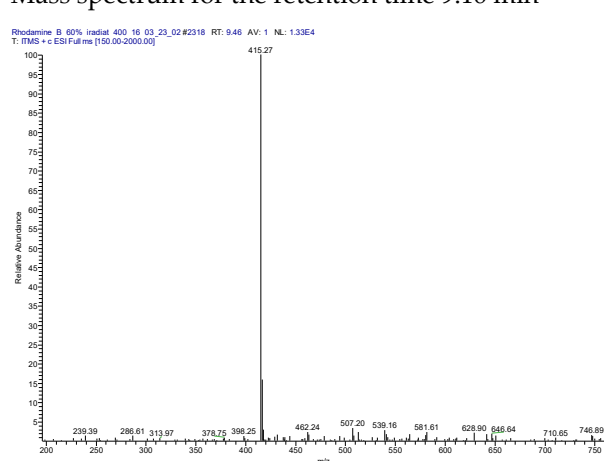
### Mass spectrum for the retention time 6.90 min



### Mass spectrum for the retention time 7.65 min



### Mass spectrum for the retention time 9.16 min



### Mass spectrum for the retention time 10.70 min

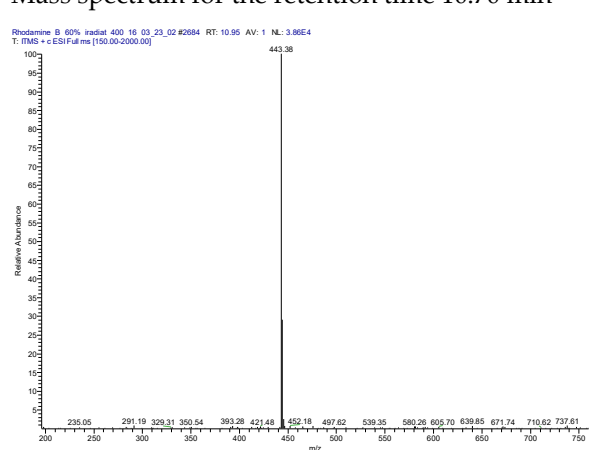


Figure S5. Mass spectrum for different retention times

## 5. Oxytetracycline photodegradation

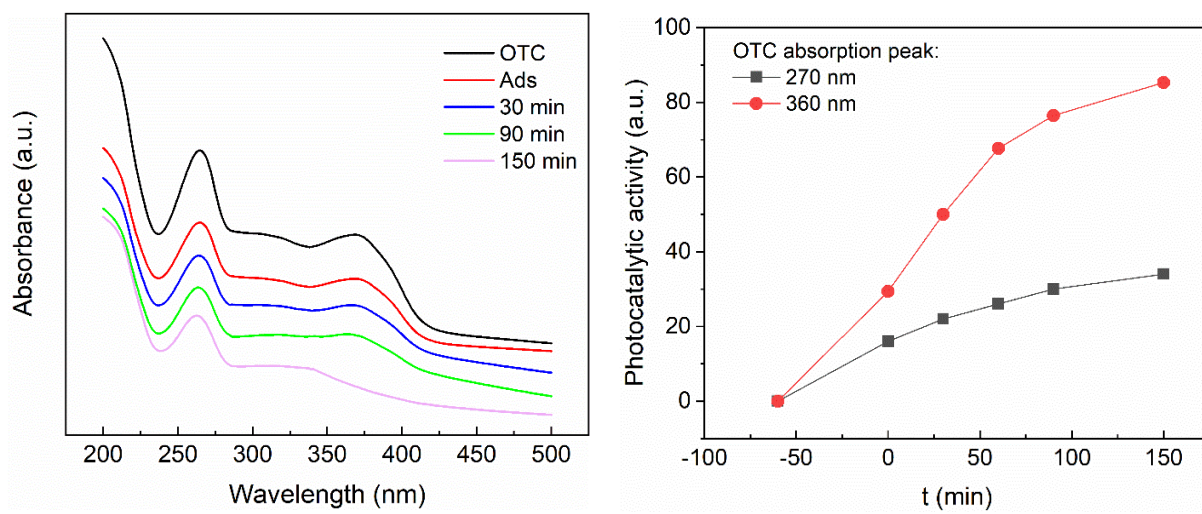


Figure S6 Photocatalytic degradation of Oxytetracycline in the presence of CZF1-5 nanocomposites