

### Supporting Information

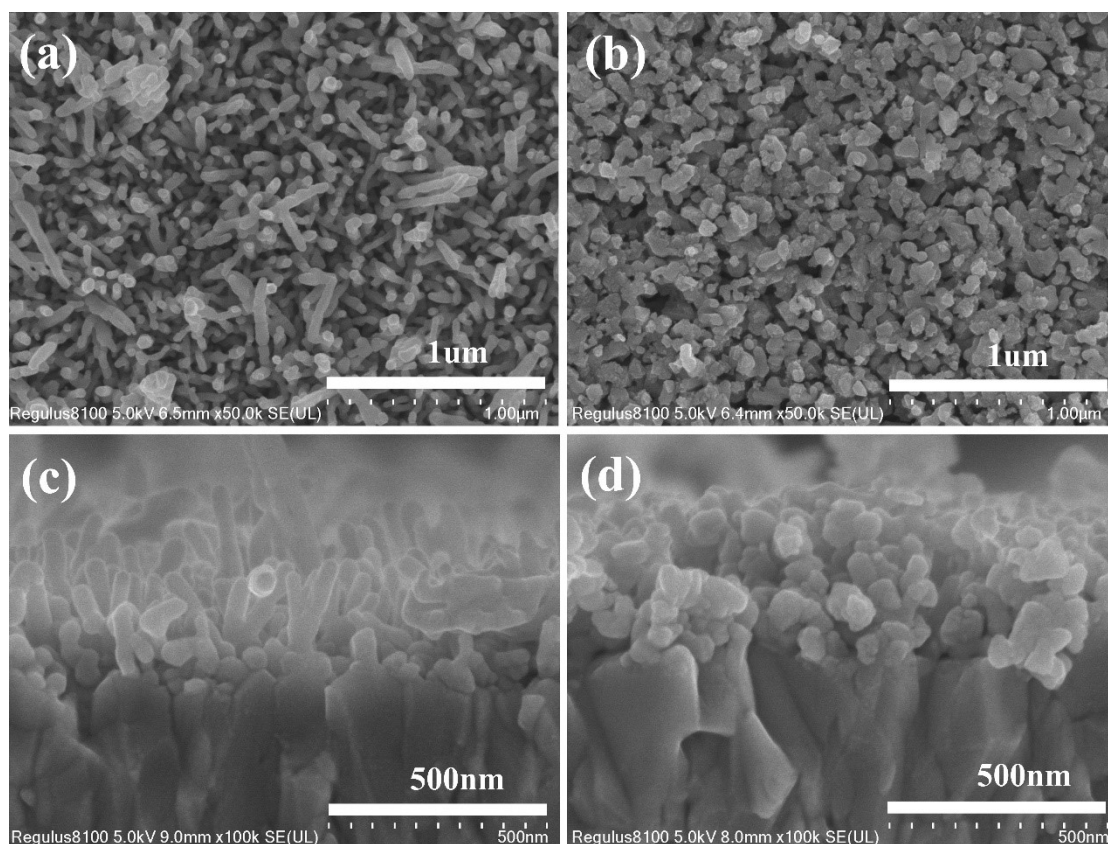


Figure S1: (a) and (b) Top-view SEM images of Fe<sub>2</sub>O<sub>3</sub>/g-C<sub>3</sub>N<sub>4</sub>-1 and Fe<sub>2</sub>O<sub>3</sub>/g-C<sub>3</sub>N<sub>4</sub>-3 (c) ,(d) Cross-sectional electron microscopy (SEM) images of Fe<sub>2</sub>O<sub>3</sub>/g-C<sub>3</sub>N<sub>4</sub>-1 and Fe<sub>2</sub>O<sub>3</sub>/g-C<sub>3</sub>N<sub>4</sub>-3

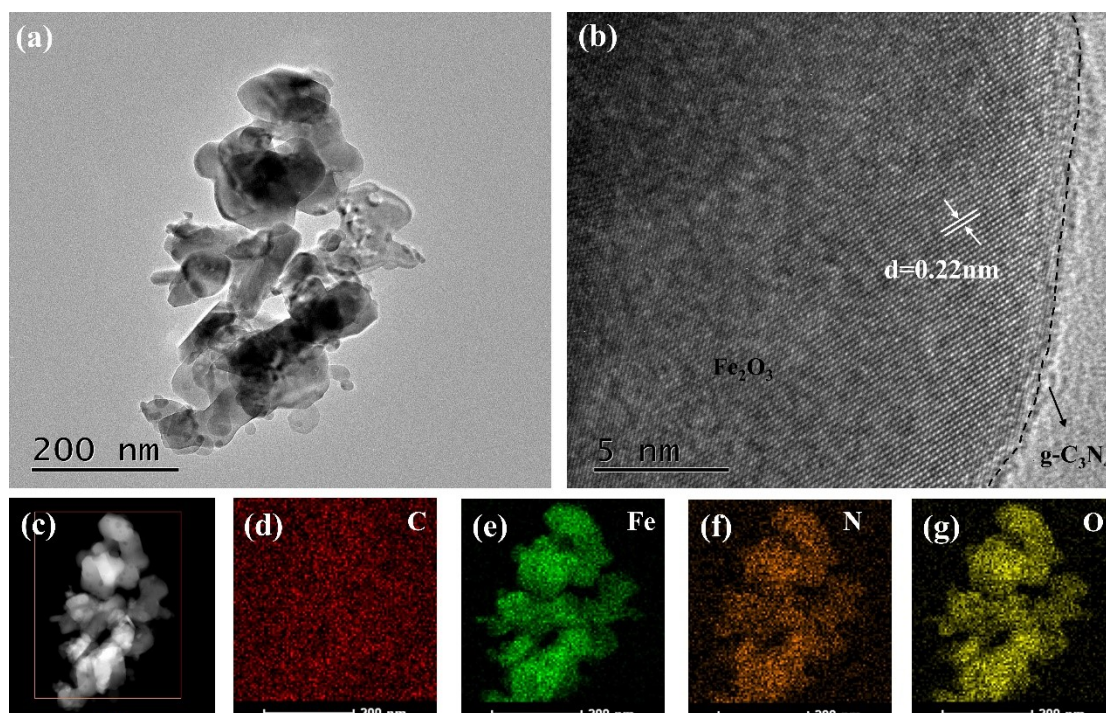


Figure S2: (a) The transmission electron microscope images (TEM) of Fe<sub>2</sub>O<sub>3</sub>/g-C<sub>3</sub>N<sub>4</sub>-2 (b) The high-resolution transmission electron microscopy image of Fe<sub>2</sub>O<sub>3</sub>/g-C<sub>3</sub>N<sub>4</sub>-2; (c) TEM image in dark-field mode of Fe<sub>2</sub>O<sub>3</sub>/g-C<sub>3</sub>N<sub>4</sub>-2; (d-g) The element mapping images of C、Fe、N、O

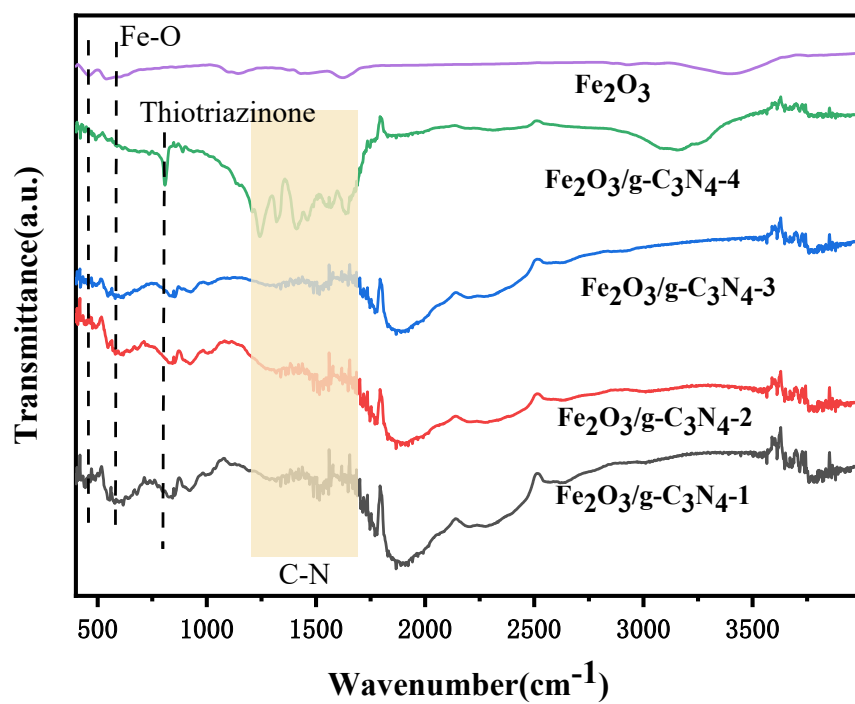


Figure S3: Fourier transform infrared spectra of  $\text{Fe}_2\text{O}_3$ 、  $\text{Fe}_2\text{O}_3/\text{g-C}_3\text{N}_4$ -1、  $\text{Fe}_2\text{O}_3/\text{g-C}_3\text{N}_4$ -2、  $\text{Fe}_2\text{O}_3/\text{g-C}_3\text{N}_4$ -3 and  $\text{Fe}_2\text{O}_3/\text{g-C}_3\text{N}_4$ -4