Electronic supplementary information

Magnetic graphene solid-phase extraction in the determination of polycyclic aromatic hydrocarbons in water †

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1. Optimization of the extraction parameters

The detailed extraction conditions used in the experiments of optimization of the extraction parameters were as follows.

1.1 Effect of the amount of the sorbents on the chromatography peak areas of the PAHs. Extraction conditions: sample volume, 100mL; extraction time, 5min; organic modifier, 3% 2-propanol; desorption solvent, 100μL of composite solvent (toluene: acetone (v:v) 3:1); desorption time, 5min; concentration of the analytes, 5μg/L.

1.2 Effect of the extraction time on the chromatography peak areas of the PAHs. Extraction conditions: sample volume, 100mL; amount of the sorbents, 10mg; organic modifier, 3% 2-propanol; desorption solvent, 100μL of composite solvent (toluene: acetone (v:v) 3:1); desorption time, 5min; concentration of the analytes, 5μg/L.

1.3 Effect of the selection of desorption solvent on the chromatography peak areas of the PAHs. Extraction conditions: sample volume, 100mL; amount of the sorbents, 10mg; extraction time, 5min; organic modifier, 3% 2-propanol; volume of desorption solvent, 100μL, desorption time, 5min; concentration of the analytes, 5μg/L.

1.4 Effect of the amount of desorption solvent on the chromatography peak areas of the PAHs. Extraction conditions: sample volume, 100mL; amount of the sorbents, 10mg; extraction time, 5min; organic modifier, 3% 2-propanol; desorption solvent, composite solvent (toluene: acetone (v:v) 3:1); desorption time, 5min; concentration of the analytes, 5μg/L.

1.5 Effect of the desorption time on the chromatography peak areas of the PAHs. Extraction conditions: sample volume, 100mL; amount of the sorbents, 10mg; extraction time, 5min; organic modifier, 3% 2-propanol; desorption solvent, 100μL composite solvent (toluene: acetone (v:v) 3:1); concentration of the analytes, 5μg/L.

2. Figure scheme 1: The SEM image in Figure scheme 1 is same as Fig. 1e, where the image is clearer and the size is larger. In order to avoid needless duplication, we deleted the SEM image in Figure scheme 1. Finally, the figure scheme 1 is as follows.

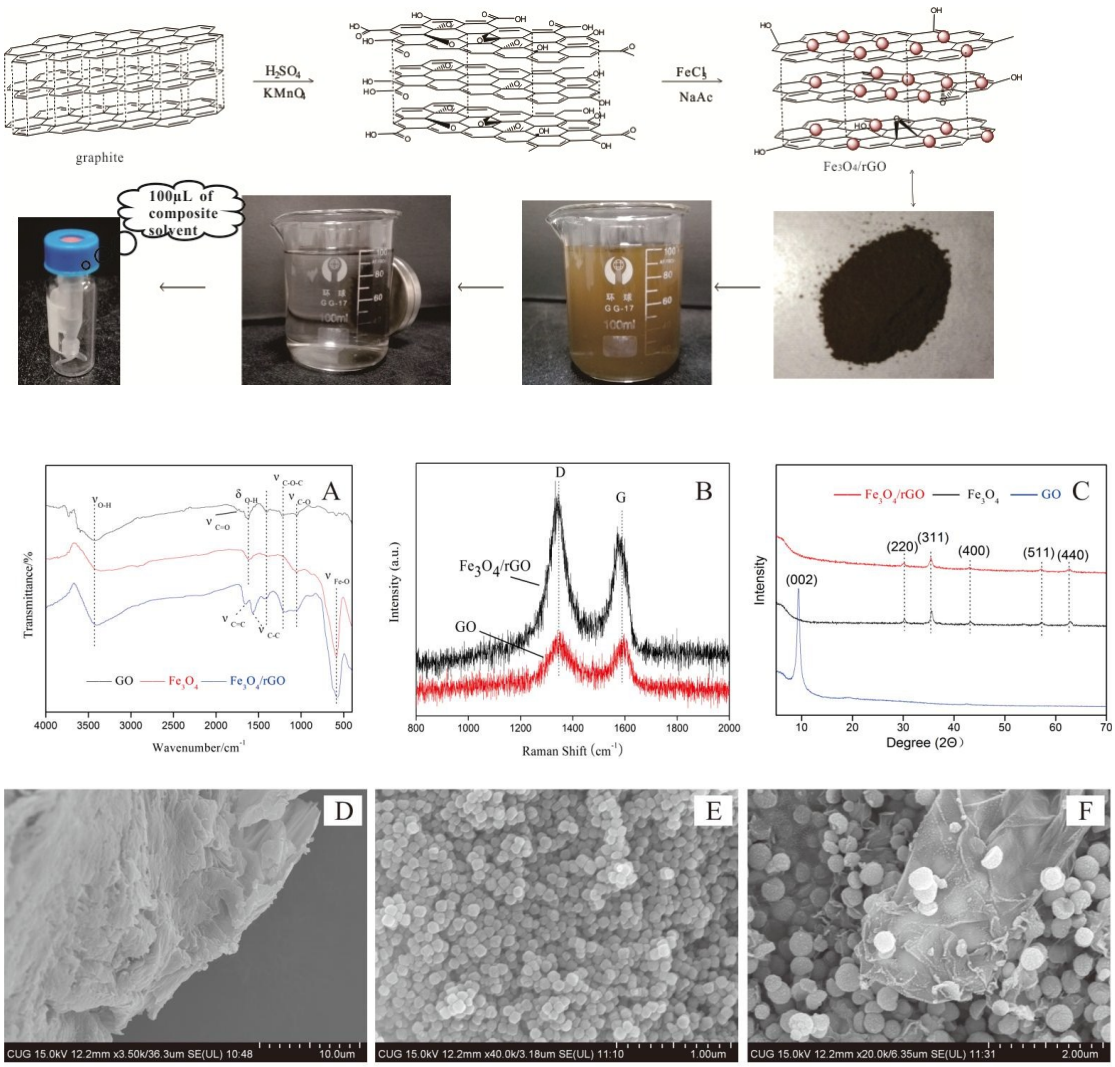

Fig. 1 (A) FTIR spectra of GO, Fe_3O_4 and Fe_3O_4/rGO; (B) Raman spectra of Fe_3O_4/rGO and GO; (C) X-ray diffraction patterns of GO, Fe3O4 and Fe3O4/rGO; SEM images of (D) GO, (E) Fe_3O_4 and (F) Fe_3O_4/rGO.

3. Fig. S1: Total adsorption of 10mg of Fe_3O_4/rGO for 100mL water containing 20mg/L PAHs