Electronic Supporting Material

Ionic covalent organic framework for rapid extraction of polar organic acids in environmental waters

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Figure S1 Synthesis diagram of Fe_3O_4@EB-TFB-iCOF

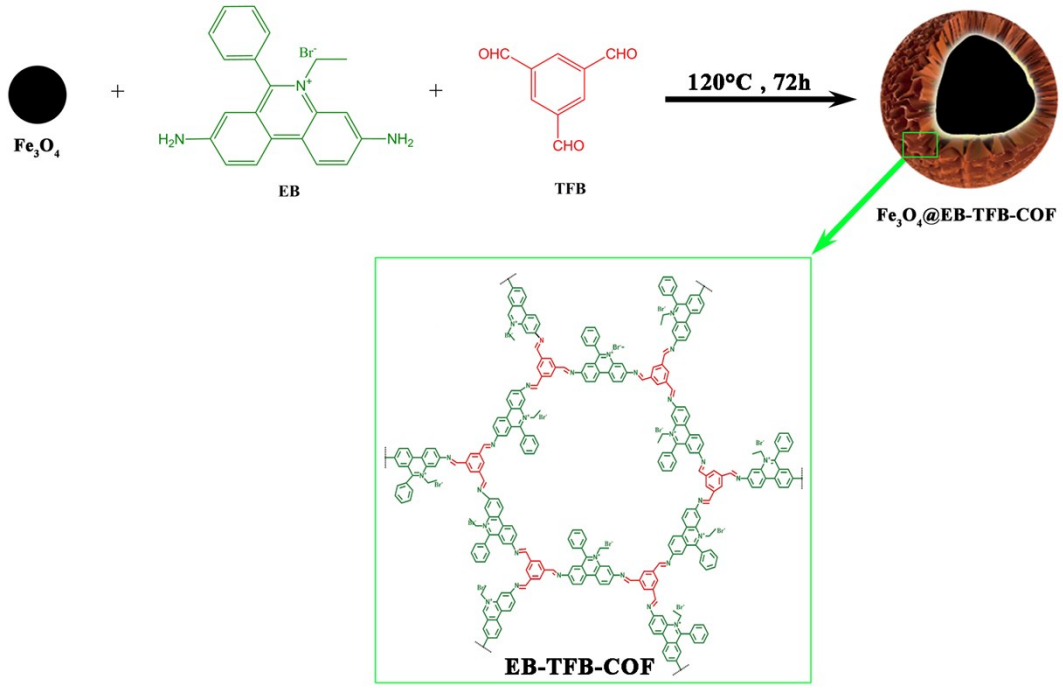


Figure S2 Zeta potential analysis of Fe_3O_4@EB-TFB-iCOF

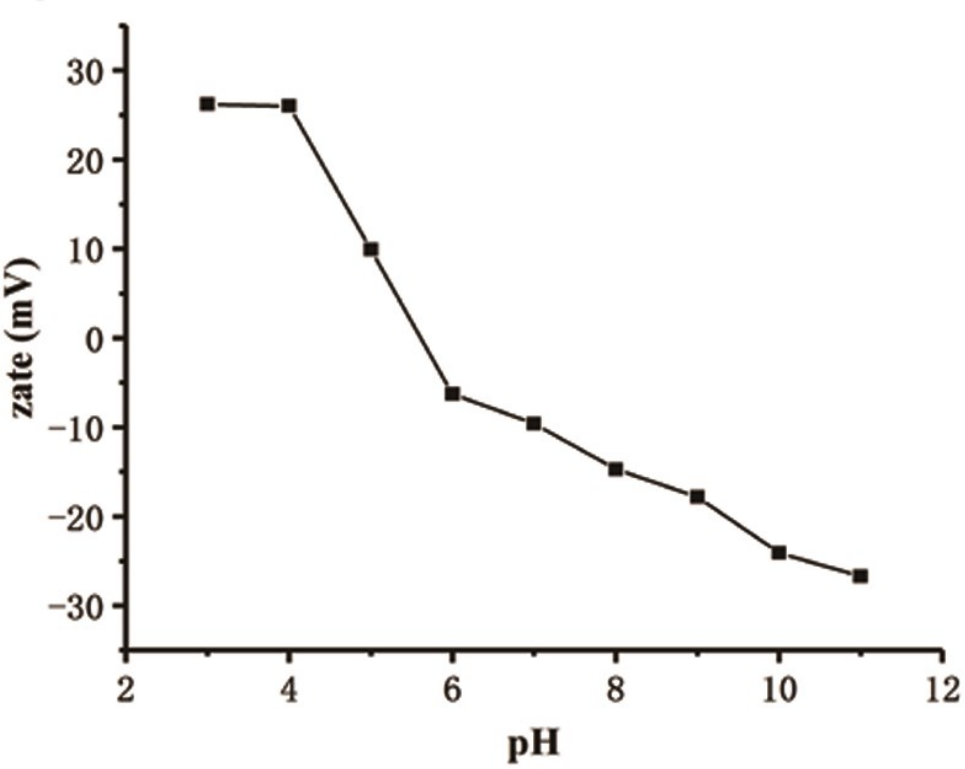


Table S1 Reproducibility of Fe_3O_4@EB-TFB-iCOF

a. Three parallel extraction materials

Analytes	Parallel 1, R (%)	Parallel 2, R (%)	Parallel 3, R (%)	RSD (%)
NAA	80.4%	89.8%	80.3%	5.34
BNOA	99.0%	90.2%	98.9%	4.29
MCPA	90.4%	94.4%	94.6%	2.54
2,4,5-TP	94.0%	88.7%	95.5%	3.15

b. Single extraction material with five replicates

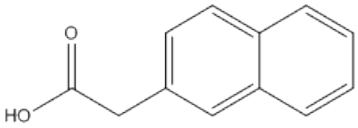
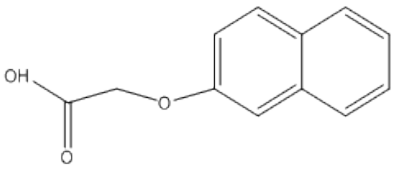
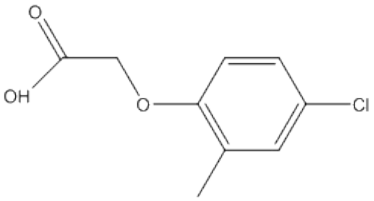
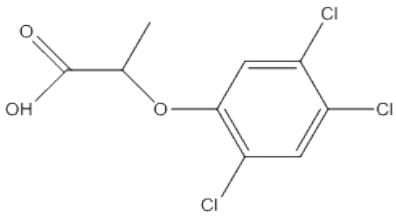
Analytes	n=1, R (%)	n=2, R (%)	n=3, R (%)	n=4, R (%)	n=5, R (%)	RSD (%)
NAA	97.6%	93.9%	90.1%	91.7%	90.0%	2.80
BNOA	89.7%	94.8%	98.3%	96.3%	99.5%	3.26
MCPA	97.4%	87.8%	90.4%	85.2%	91.3%	4.13
2,4,5-TP	92.0%	87.6%	87.6%	88.7%	88.3%	1.68

Table S2 Extraction efficiency of different pollutants using Fe_3O_4@EB-TFB-iCOF as MSPE adsorbent (n=3)

Analytes	EE (%)	RSD (%)
Organic acids [a]	72.1-93.3%	0.4-1.3
Sulfonamides [b]	30.6-39.2%	0.8-1.7
Estrogens [c]	34.2-41.2%	1.1-1.9
PAHs [d]	6.4-9.6%	0.7-2.4

[a] NAA, BNOA, MCPA, 2,4,5-TP; [b] Sulfadiazine, sulfapyridine, sulfamerazine, sulfamethoxazole, sulfisoxazole; [c] Estriol, β-Estradiol; [d] Naphthalene, Acenaphthene, Phenanthrene, Fluoranthene

Table S3 Physical–chemical properties of organic acids

Analytes	Structure	Molecular weight	pK_a
NAA		186.2	3.73
BNOA		202.2	4.60
MCPA		200.6	3.14
2,4,5-TP		269.5	3.03