

Supplementary material for

Porous graphene-coated stainless-steel fiber for direct immersion solid-phase microextraction of polycyclic aromatic hydrocarbons

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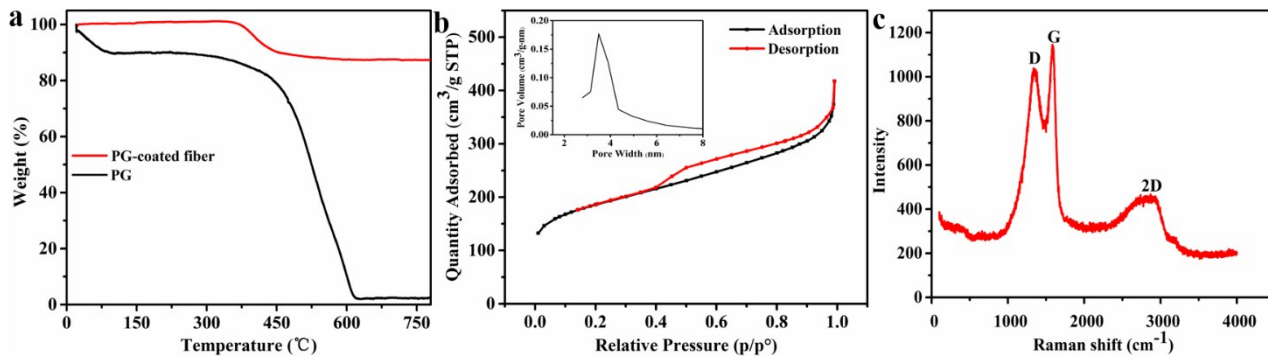


Fig. S1 (a) TGA curve of porous graphene and PG-coated fiber; (b) N₂ adsorption-desorption curves and (the inset) pore size distribution of the PG samples; (c) Raman spectra of PG.

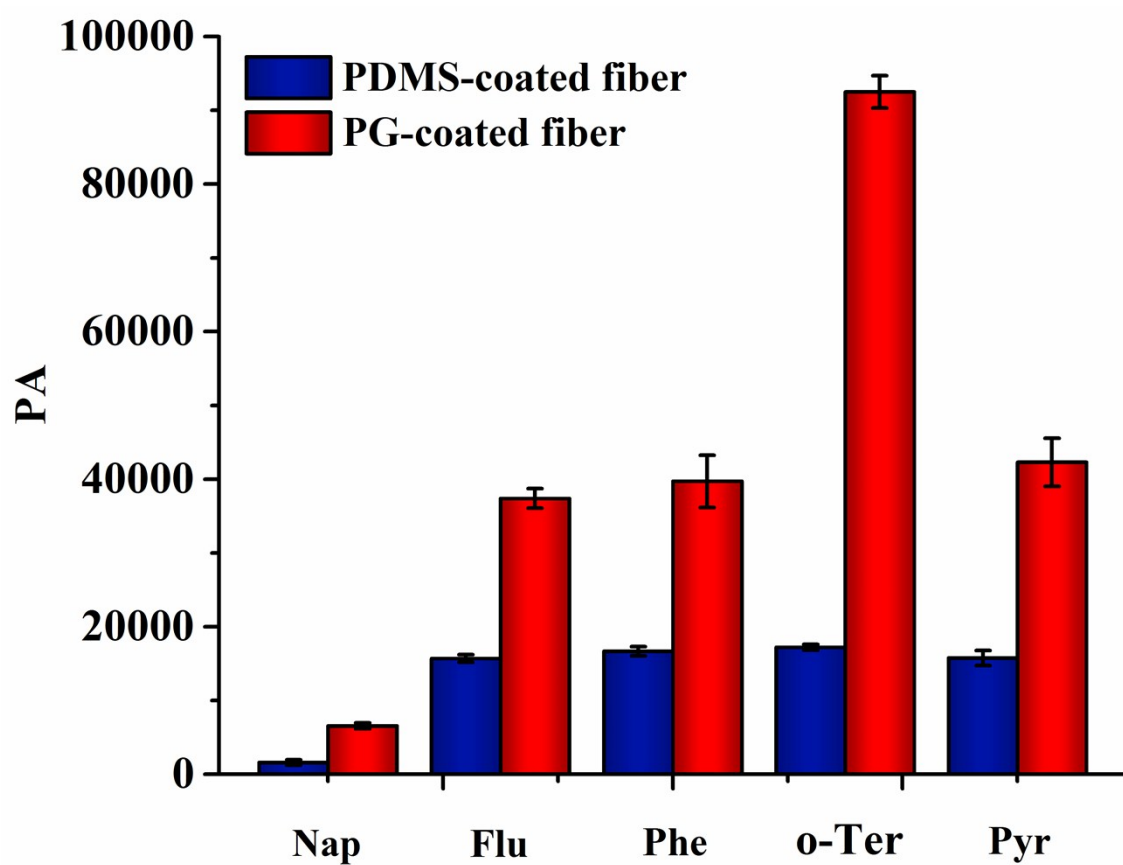


Fig. S2 Comparison of the extraction efficiency of PG-coated fiber with PDMS-coated fiber.

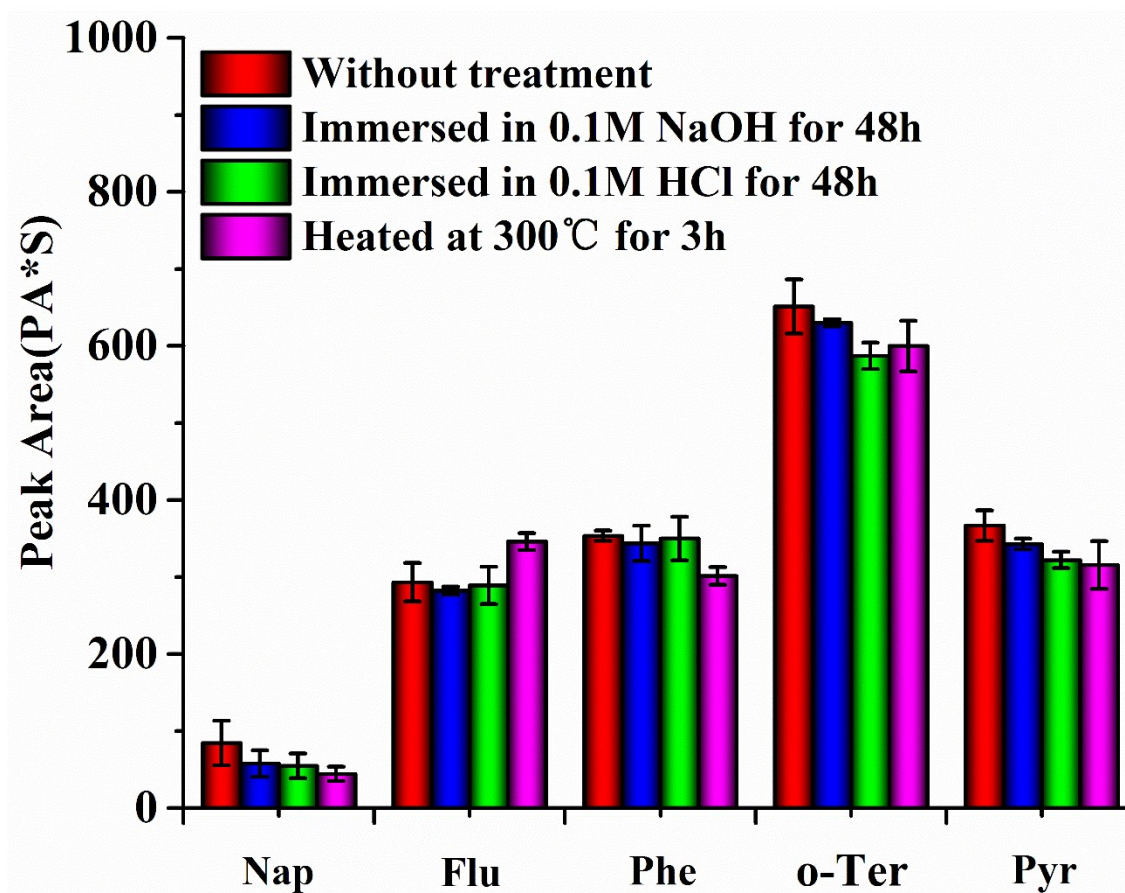


Fig. S3 Stability of PG-SPME fiber. Conditions: extraction time, 40 min; extraction temperature, 30 °C; content of NaCl, 20% (w/v); desorption temperature, 250 °C; desorption time, 7 min.

Table S1 Analytical data of the method with PG coated fiber.

Compounds	Linear range ($\mu\text{g L}^{-1}$)	R^2	LOD (ng L^{-1})	RSD (%)	
				One fiber (n=5)	Fiber-to-fiber (n = 3)
Nap	0.002-10	0.9991	2	7.75	8.12
Flu	0.002-10	0.9940	1	5.15	4.31
Phe	0.002-10	0.9971	1	4.56	3.29
o-Ter	0.002-10	0.9953	1	4.81	5.15
Pyr	0.002-10	0.9986	2	3.93	4.52

Table S2 Determination and recoveries of PAHs in real samples.

Samples	Analytes	Mean ($\mu\text{g L}^{-1}$)	Spiked $0.1 \mu\text{g L}^{-1}$		Spiked $1\mu\text{g L}^{-1}$	
			Recovery (%)	RSD (%)	Recovery (%)	RSD (%)
River water	Nap	N.D.	85.66	8.27	97.37	3.11
	Flu	N.D.	98.44	5.55	92.19	5.65
	Phe	N.D.	92.09	9.61	99.01	1.12
	o-Ter	N.D.	88.80	2.92	94.42	7.55
	Pyr	N.D.	98.62	3.93	100.5	4.75
Pond water	Nap	N.D.	64.83	9.27	99.33	14.1
	Flu	N.D.	76.16	1.56	96.83	3.80
	Phe	N.D.	83.68	5.64	102.0	0.62
	o-Ter	0.01	95.22	2.85	99.64	1.55
	PYr	0.01	83.84	3.67	99.37	0.43
	Pyr	N.D.	81.54	3.19	92.46	6.74

N.D., not detected.