Electronic Supplementary Information For

Octadecyltrimethoxysilane functionalized ZnO nanorods as a novel coating for solid-phase microextraction with strong hydrophobic surface

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Materials. Stainless steel wires (O.D., 0.15 mm) were purchased from the PuLin Metal Material Co., Ltd (Shenzhen, China). Analytical grade of toluene, ethylbenzene, o-xylene, p-xylene and m-xylene were purchased from the GuangFu Fine Chemical Research institute (Tianjin, China). Hexanal, heptanal, octanal, nonanal and decanal were purchased from J&K Scientific Co., Ltd. (Beijing, China). Methanol was obtained from Tedia (Fairfield, OH, USA). OTMS was purchased from Sigma-Aldrich (Milwaukee, WI, USA). Zinc nitrate ($Zn(NO_3)_2$) and hexamethylene tetramine (HMT) were bought from the Sinopharm Chemical Reagent Co., Ltd. (Shanghai, China). Stock solution of the five benzene homologues at 500 μg mL^{-1} were prepared using methanol and stored at 4 ^{o}C in a refrigerator. The standard working solutions were prepared by diluting the mixture with water to the required concentration. Double distilled water was used for all experiments. The standard working solutions of aldehydes were prepared by diluting the mixture (100 μg mL^{-1}) with methanol to the required concentration.

Instrumentation. A Hitachi S4800 scanning electron microscope (SEM) equipped with an energy dispersive X-ray spectrometer (EDS) system for elemental analysis

and mapping (Tokyo, Japan) was used for the characterization of the ZNRs and OTMS-ZNRs coated fibers. A Branson 200 ultrasonicator (Danbury, CT, USA) was used to thoroughly mix various solution ingredients. A magnetic stirrer (IKA-Werke, Staufen, Germany) with the function of temperature control was used to agitate the sample. A Commercial manual sampling SPME device was purchased from Supelco (Bellefonte, PA, USA), and the SPME fiber with 7 μm PDMS was selected for data comparison. Before use, the PDMS fiber was conditioned in GC injector according to the instructions provided by the manufacturer. The prepared ZnO nanorod coated fiber was also conditioned at 220 ^{o}C for 30 min. The analysis of the benzene homologues and aldehydes was carried out on a Shimadzu GC-2010 GC system coupled with a flame ionization detector (FID). Separation was carried out using a DB-5 capillary column (30 m × 0.25 mm I.D. and 0.25 μm, J&W Scientific, CA, USA).

The instrumental parameters for the analysis of the benzene homologues were as follows: N_2 flow, 1.4 mL min^{-1}; column temperature program: held at 40 ^{o}C for 5 min, then increased to 50 ^{o}C at 5 ^{o}C min^{-1} and maintained for 1 min, finally increased to 260 ^{o}C at 30 ^{o}C min^{-1}. The injector and detector temperature was set at 220 and 300 ^{o}C, respectively. The desorption was performed with splitless mode for 0.5 min.

The instrumental parameters for the analysis of the aldehydes were as follows: N_2 flow, 1.47 mL min^{-1}; column temperature program: held at 40 ^{o}C for 3 min, then ramped to 70 ^{o}C at 15 ^{o}C min^{-1} and held for 1 min, finally raised to 220 ^{o}C at 30 ^{o}C min^{-1} and maintained for 1 min. The detector temperature was held at 280 ^{o}C. The desorption was performed at 220 ^{o}C with splitless mode for 1 min.

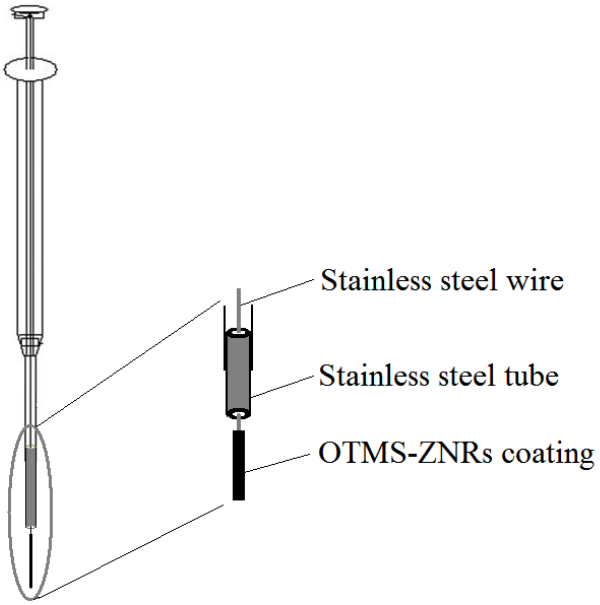

Fig. S1 Schematic diagram of the modified SPME fiber substrate and device

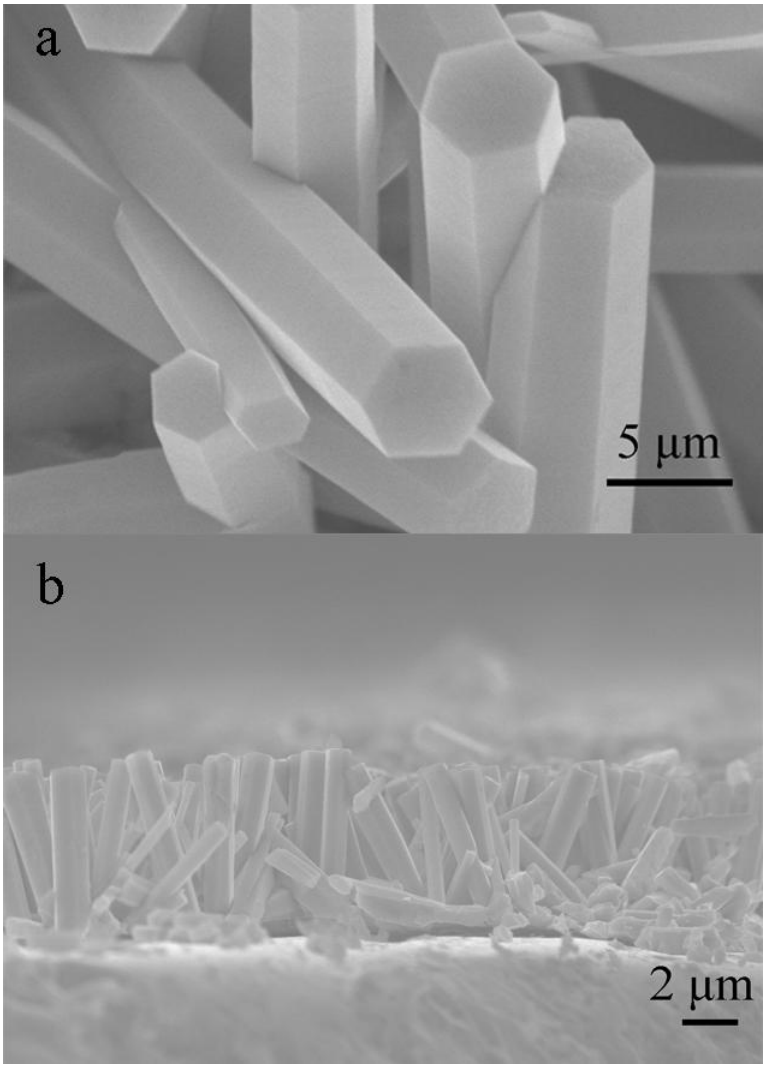

Fig. S2 SEM images of a ZNRs-coated fiber with (a) top and (b) cross-sectional view

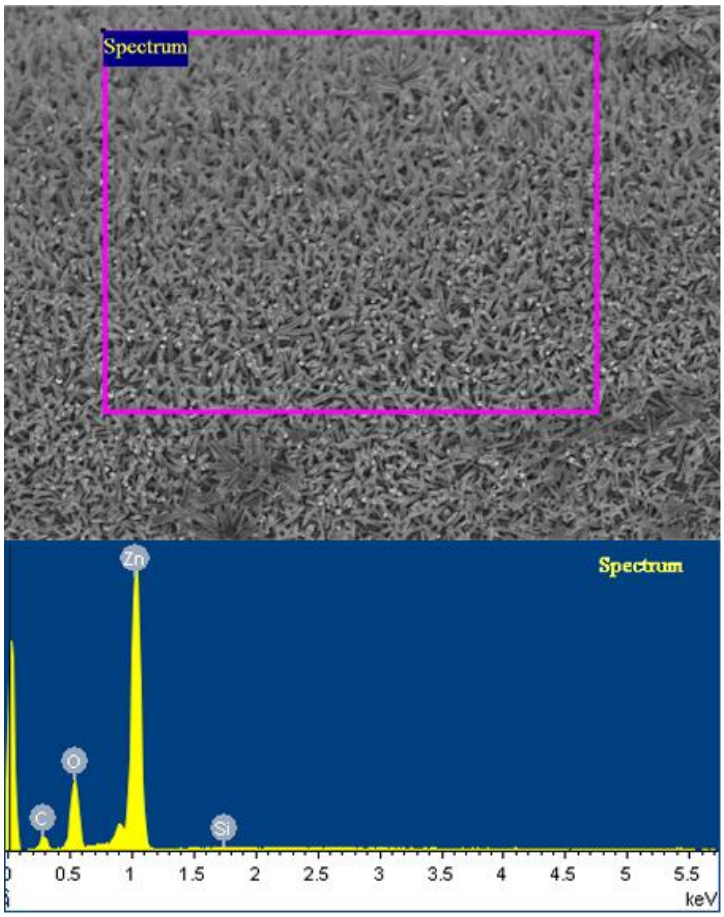

Fig. S3 A typical spectrum of the EDS analysis of an OTMS-ZNRs coated fiber

Table S1 The results of the EDS analysis of the OTMS-ZNRs coated fiber

Atom	Mass percentage (%)	Atom percentage (%)
C K	11.77	29.04
O K	22.01	40.78
Si K	0.24	0.25
Zn L	65.98	29.92
Total content	100.00	100.00