Supporting Information

Disposable solid-phase microextraction fiber for complex matrix analysis coupled with gas chromatography-mass spectrometry

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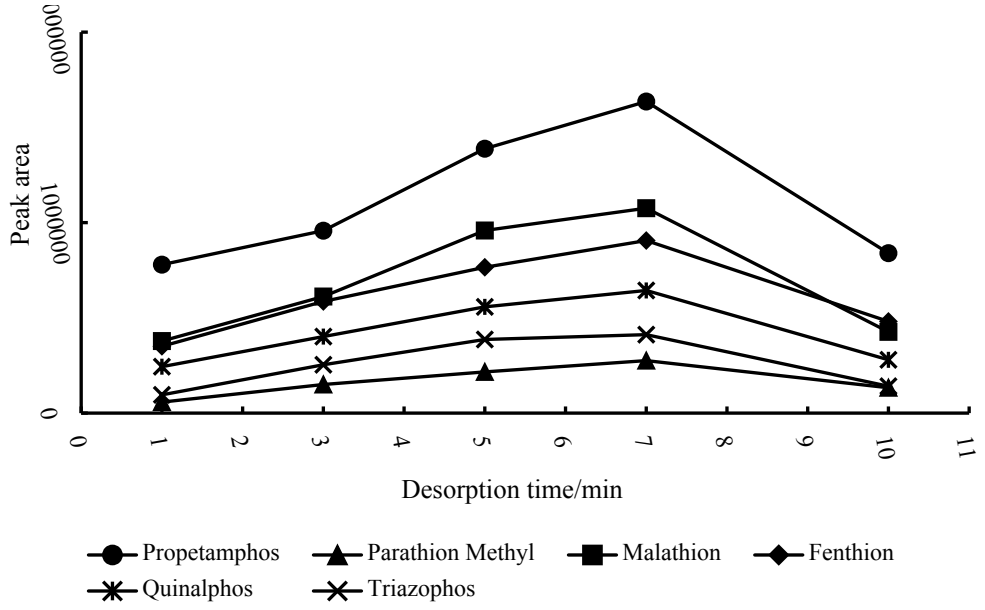

Fig. S1 Thermal desorption time profiles of the six OPPs extracted by the home-made fibers reported in the present study. The spiked concentration in the homogenized fish muscle was 2.5 μg·g^{-1}, and the extraction time was 20 min. The residual portions of the six OPPs in the fiber after being thermally desorbed for 7 min were evaluated by a secondary desorption: propetamphos, 1.4%; parathion methyl, 0.0%; malathion, 0.0%; fenthion, 0.3%; quinalphos, 1.1%; triazophos, 0.8%.

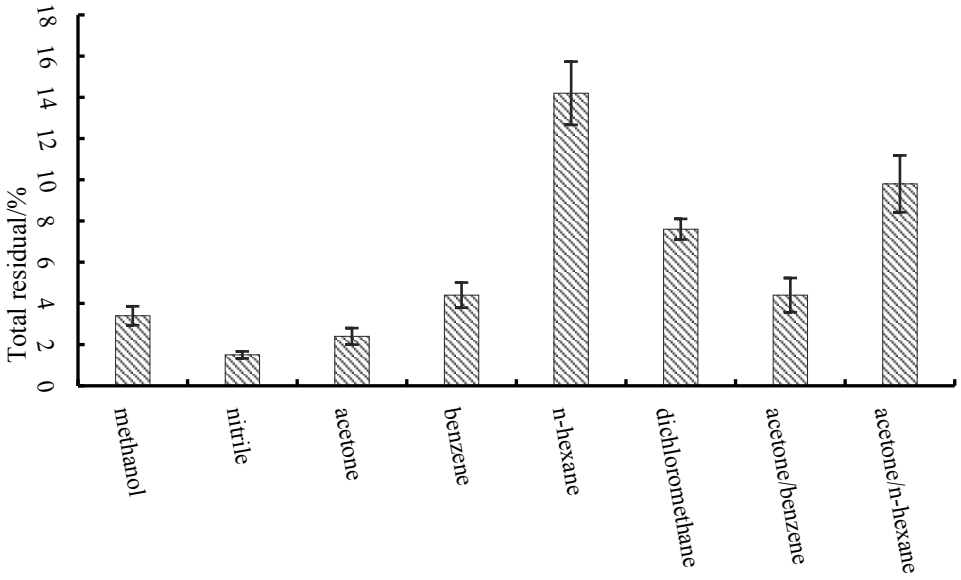

Fig. S2 Total residuals of the six OPPs in the thicker PDMS fiber by using different solvents. The volume ratios of the components in the two mix solvents were both 1:1. After desorption in 50 μL of solvents for 60 min, the least OPPs were left in the fiber

when nitrile was used.

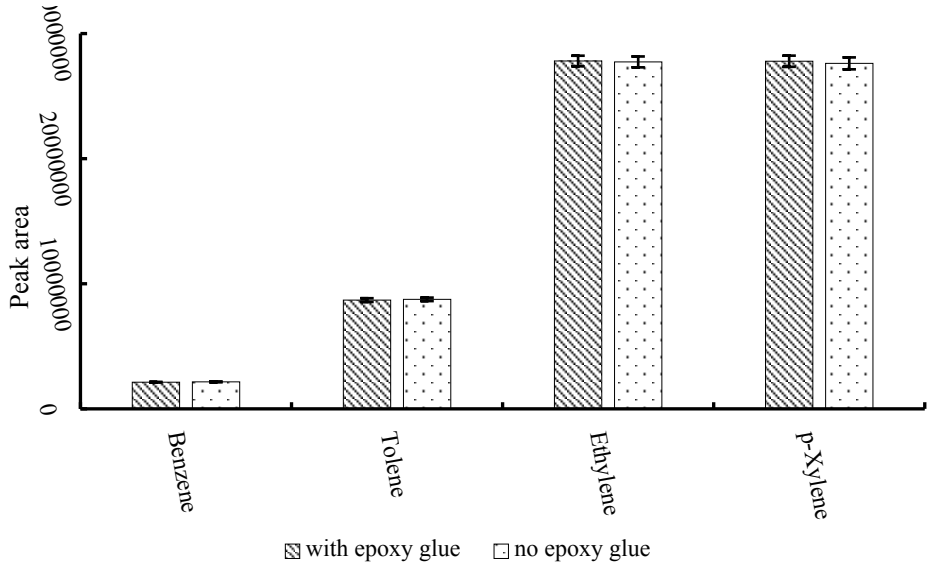

Fig. S3 Comparison of the extraction efficiencies of the home-made fibers prepared with epoxy glue and without epoxy glue. The HS extraction duration was 20 min, and the concentrations of the aqueous solution were 1 $mg \cdot L^{-1}$ for each compound. Error bars are SDs of six parallel extractions with one single fiber. The RSDs were all less than 2%.

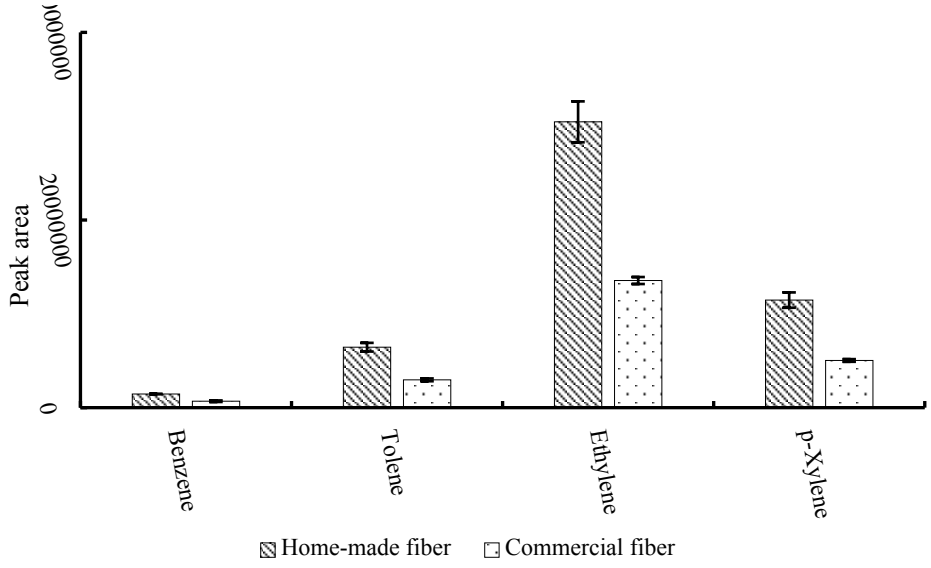

Fig. S4 Comparison of the extraction efficiencies of the home-made SPME fiber with a commercial 30 μm PDMS fiber by HS extraction of BTEX. The concentration of

each compound was 1 $mg \cdot L^{-1}$ in the solutions, the extraction time was 20 min. The error bars were SDs of six parallel extractions.

Temperature programs for GC-MS analysis

The ionization energy was 70 eV, and the temperature of the ion source was 230 ºC. For the analysis of BTEX, the carrier gas flow was constantly set at 1.5 $mL \cdot min^{-1}$, and the inlet temperature was 250 ºC in splitless mode. The initial column temperature was 50 ºC, held for 2 min, and then increased to 120 ºC at 20 $ºC \cdot min^{-1}$. For the analysis of PAHs, the carrier gas was kept at a constant flow of 1.2 $mL \cdot min^{-1}$ with the inlet temperature of 250 ºC in splitless mode. The column temperature was initially 50 ºC, held for 2min, and was programmed to 150 ºC at 20 $ºC \cdot min^{-1}$, subsequently to 250 ºC at a rate of 10 $ºC \cdot min^{-1}$, and increased to 270 ºC at 30 $ºC \cdot min^{-1}$, held for 8 min. Total ions scanned mode was used for the quantification of BTEX and PAHs, since the sample matrices were quite clean.

For the analysis of OPPs, the carrier gas flow was set at 1.2 $mL \cdot min^{-1}$, the inlet temperature was 250 ºC in splitless mode. The initial column temperature was 100 ºC, held for 2min, and then ramped to 180 ºC at 30 $ºC \cdot min^{-1}$, held for 1 min, increased to 195 ºC at 2 $ºC \cdot min^{-1}$, held for 1 min, then ramped to 230 ºC at 10 $ºC \cdot min^{-1}$, held for 2 min. Since OPPs were extracted from the complex matrix, fish muscle, selected ions mode was used for the quantification of OPPs and the selected ions for each compound were as follows: propetamphos, m/z 138, 194, 236; parathion methyl, m/z 233, 246, 263; malathion, m/z 143, 158, 173; fenthion, m/z 153, 169, 278; quinalphos, m/z 146, 157, 298; triazophos, m/z 161, 172, 257.