Supporting information for

Surface-Enhanced Laser Desorption/Ionization Mass Spectrometry for Rapid Analysis of Organic Environmental Pollutants by Using Polydopamine Nanospheres as Substrate

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Experimental section

$PM_{2.5}$ sample collection. $PM_{2.5}$ samples were collected from Shanxi University (37º47′42.70″N, 112º34′52.51″E) in Taiyuan, China on November 4th, 2018 (sample 1#), November 7th, 2018 (sample 2#), December 8th, 2018 (sample 3#). Two ADS-2062E volume air sampler (AMAE (Shenzhen) Co., Ltd, China) and quartzmicrofiber filters (Whatman, QMA, 180*230 mm) were used for $PM_{2.5}$ collection. The flowrate of air samplers was 1 m^3/min and total sampling period was 23.5 h. After sample collection, the filters were wrapped with aluminum foil and sealed in zip bag at -20 refrigerator to prevent the photo-degradation.

Sample preparation for mass spectrometry analysis. The CHCA matrix of 10 mg mL^{-1} was prepared with acetonitrile/water (2:1, v/v) containing 0.1% TFA. 9-aminoacridine (9-AA) was dissolved in a methanol-water solution (9:1, v/v) at 10 mg mL^{-1}. BPs, BzPs, SAs, PFCs and estrogens were dissolved in methanol-water solution (1:1, v/v, 1 mg mL^{-1}) and stored at 4℃. PAHs was dissolved in hexane (1 mg mL^{-1}) stored at -20℃. PDA and DA were all dispersed in methanol-water (1:1, v/v) and then sonicated for 10 min to obtain homogeneous suspension solutions (0.5 mg mL^{-1}). Finally, 1μL substrate solution and 1 μL analyte solution were pipetted on a stainless steel MALDI target and then dried in the air.

Supporting Information-Figures

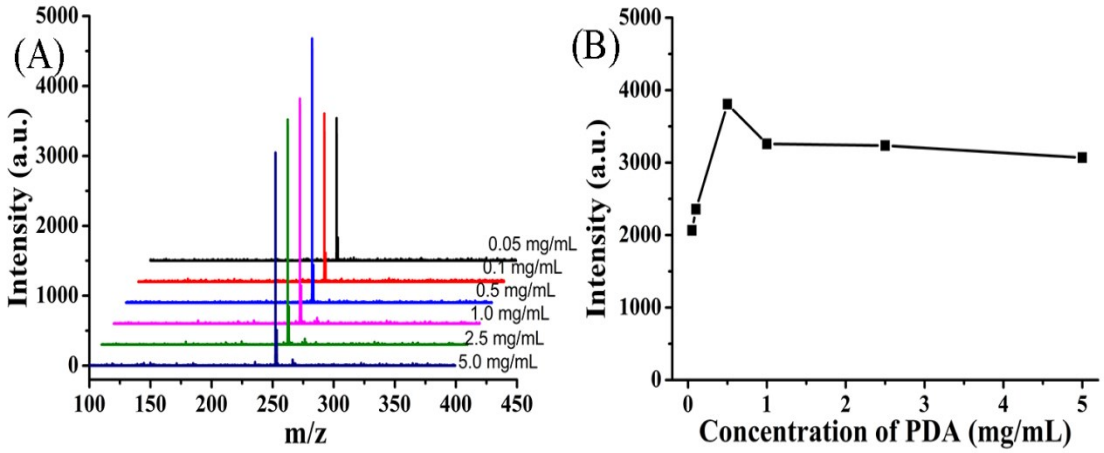

Figure S1 (A) mass spectra of BaP by using PDA with different concentration as substrate in positive ion mode. (B) optimization curve of PDA concentration. The concentration of BaP was set as 50 ng μL^{-1}.

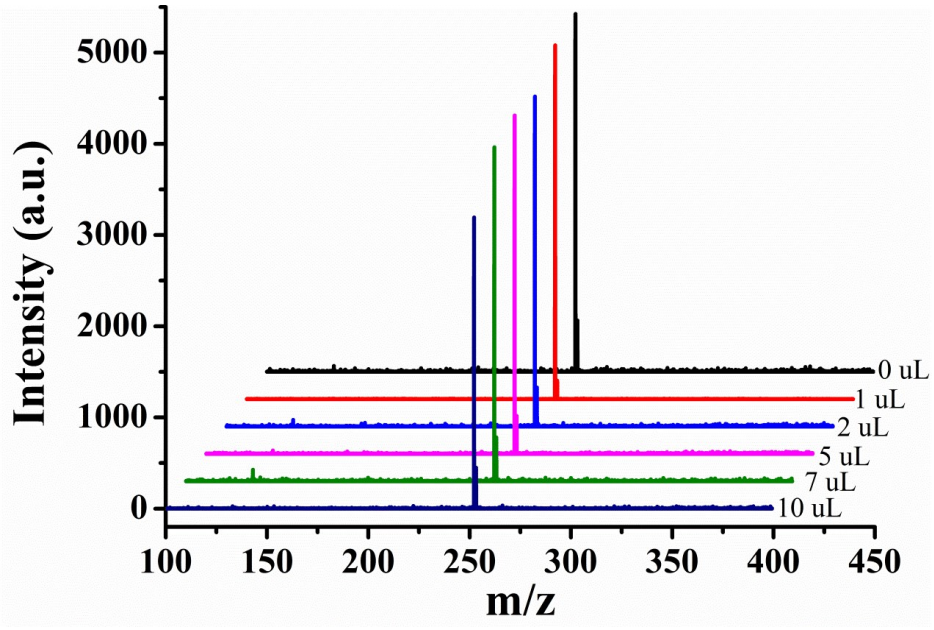

Figure S2 Mass spectra of BaP by using PDA in positive ion mode with 0-10 μL oil in 1 mL solution.

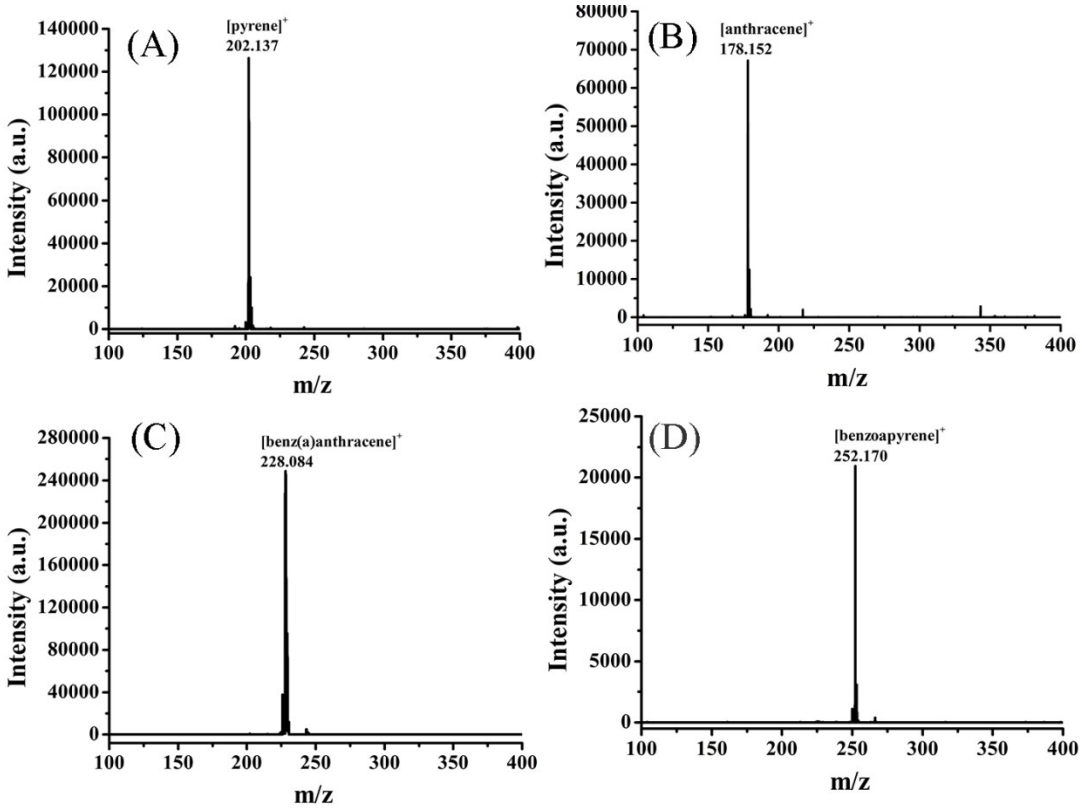

Figure S3 Mass spectra of four kinds of 1mg mL^{-1} PAHs by using PDA in positive ion mode: (A) anthracene; (B) pyrene; (C) benz(a)anthracene; (D) benzoapyrene.