Supplementary Information

for

Determination of aflatoxin B1 by novel nanofiber-packed solid-phase extraction coupled with High Performance Liquid Chromatography-Fluorescence Detector

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1. Preparation of the spinning solution

1 g PS or PVP was dissolved in 10 ml of mixed solution of tetrahydrofuran (THF) and N,N-dimethylformamide (DMF) (6:4, v/v) to obtain 10% (w/v) PS solution; 0.5 g PS and 0.5 g AR were dissolved in the above mixed solution and stirred continuously using an electromagnetic stirrer until complete fusion to obtain 5% (w/v) PS-5% (w/v) AR solution; 0.5 g PS and 0.5 g PVP were dissolved in the above mixed solution, and stirring the two materials until completely dissolved to obtain 5% (w/v) PS-5% (w/v) PVP mixed solution.

2. Preparation of Packed-fiber SPE column

A fine wire with a diameter of 1 mm was used to fill the front end of the solid-phase extraction column with 12 mg of nanofibers, which needed to be dense and homogeneous and could be filled three times, and the prepared solid-phase extraction columns were then fixed to the solid-phase extraction apparatus, which provided pressure through an air pump to drive the sample solution through the columns. And the array device of extraction columns was shown in the Fig. S1

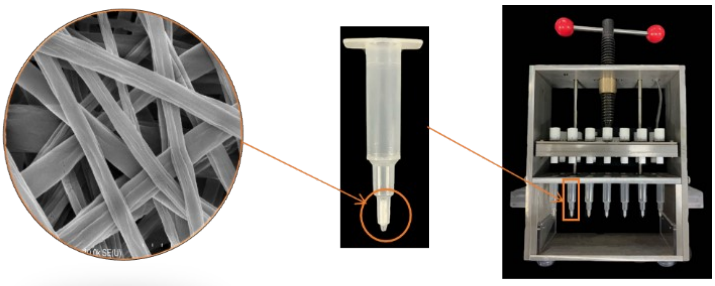

Fig. S1 Array device of 12 extraction columns

3. Preparation of 10 ng mL^{-1} of AFB1 standard solution

Weighed 1 mg of AFB1, dissolved in 100 mL of methanol, and mixed thoroughly to get 10 ug mL^{-1} of standard stock solution. Pipetted 1 mL of the solution into a 100 mL volumetric flask and filled to 100 ng mL^{-1} mixed standard working solution with methanol. Pipetted 1 mL of the solution into a 10 mL volumetric flask and adjusted the volume to the scale with water-methanol-acetonitrile solution (70:12:12, v/v/v), then mixed well to get 10 ng mL^{-1} of AFB1 standard solution.

4. Sample derivation steps

Heated the centrifuge tube with the collected eluate in a water bath to 50°C, then blowed dry with nitrogen. Removed the tube, added 60 uL hexane and 30 uL trifluoroacetic acid, vortexed and mixed, then placed it in the water bath at 40°C for 15 min for derivatization, then heated the tube to 50°C and used nitrogen to blow the liquid in the tube dry. Followed the preceding steps, 200 uL of the initial mobile phase solution was added to the centrifuge tube, mixed thoroughly, and passed through a 0.22 um filter membrane before being collected and detected using an HPLC with a fluorescence detector.

References

[1] R. Chen, Y. Y. Yang, B. Qu, Y. Li, Y. Lu, L. L. Tian and W. Y. Shen, Anal. Chem., 2016, 408, 5499-5511.