Supporting Information for

Determination of Aflatoxin B₁ in *Pixian Douban* based on

Aptamer-Magnetic Solid-Phase extraction

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**Figure S1** TEM images of Fe₃O₄ (a) and Fe₃O₄@SiO₂ (b)

Different Morphology of Fe₃O₄ before and after embedding SiO₂. Figure S1. (a) Transmission Electron Microscope of Fe₃O₄. (b) Transmission Electron Microscope of Fe₃O₄@SiO₂.

**Figure S2** Particle size distribution of Fe₃O₄

The data are the characterization of the particle size of the prepared Fe₃O₄ by nanoparticle size analyzer.
Figure S3 XRD pattern of Fe₃O₄

The crystal form of the prepared nano-magnetic bead Fe₃O₄ was characterized by X-ray diffraction (XRD).

Figure S4 The dispersion stability of Fe₃O₄@SiO₂ in deionized water (a) and magnetic response to the applied magnetic field (b)

Figure S4. (a) Fe₃O₄@SiO₂ dispersed uniformly in deionized water. Figure S4. (b) In the presence of an external magnetic field, Fe₃O₄@SiO₂ can respond quickly and
gather in the direction of magnet, indicating that the Fe₃O₄ surface coated with SiO₂ still maintains strong magnetic properties.

**Figure S5 The FT−IR spectra of Fe₃O₄ (a) and Fe₃O₄@SiO₂−NH₂ (b)**

![FT-IR spectra](image)

Fourier Transform Infrared Spectroscopy (FT-IR) Analysis of the Surface Groups of Fe₃O₄ and Amino Modified Silica Magnetic Beads.

**Figure S6 UV−V is absorption spectra of avidin (a) and aptamer (b) before and after the reaction**

![Absorption spectra](image)
(a1) avidin stock solution; (bl) avidin solution after glutaraldehyde; (a2) aptamer solution; (b2) aptamer solution after reacting with avidinized magnetic beads.

Figure S7 Detection of AFB₁ by HPLC-MS/MS. Standard curve of AFB₁(a).

MRM chromatogram of AFB₁ in the Pixian Douban sample (b, c)

The linear equations of AFB₁ in blank Pixian Douban samples are $y = 183.23x - 95.46 (R^2 = 0.99989)$. The mass spectrometric analysis was performed in MRM. For fragmentation of the
AFB$_1$[M+H]$^+$ ions is 313 m/z. The detected and quantified fragment ions were: 241 and 269 m/z for AFB$_1$. 