Supplementary Information

Construction of a fluorescence biosensing for ochratoxin A based on magnetic beads and exonuclease III-assisted DNA cycling signal amplification

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HPLC-FLD conditions

HPLC analysis was performed using a C18 column (Agilent SB-C18, 150 mm×4.6 mm, 5 μm) in a Thermo Fisher UltiMate3000 HPLC system under the column temperature at 35℃. Elution was carried out using the isocratic elution by acetonitrile:H_2O:CH_3COOH (96/102/2; v/v/v; solvent A) as mobile phase, then the CH_3OH (solvent B) was utilized to flush the pillars. The sample (50 μL) was injected at a flow rate of 1 mL/min. The signal was obtained by fluorescence detector (λ_{ex}=333 nm, λ_{em}=460 nm).

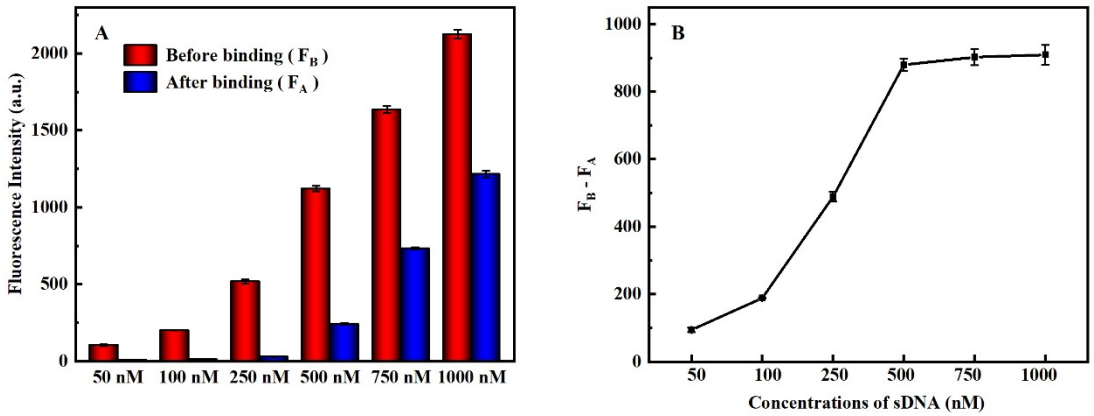

Fig. S1. (A) The effects of concentrations of sDNA (50, 100, 250, 500, 750 and 1000 nM) on the supernatant fluorescence intensity. (B) The effects of concentrations of sDNA on F_B-F_A (F_B and F_A were supernatant fluorescence intensities before and after MBs-sDNA binding, respectively). Error bars were the standard deviation calculated by three repeated experiments.

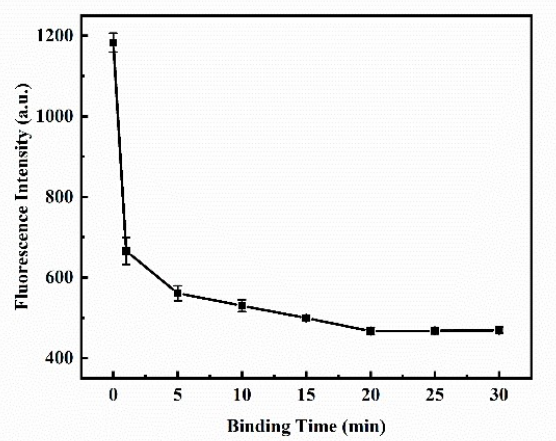

Fig. S2. The effects of binding time (0, 1, 5, 10, 15, 20, 25 and 30 min) between MBs and sDNA on the supernatant fluorescence intensity. Error bars were the standard deviation calculated by three repeated experiments.

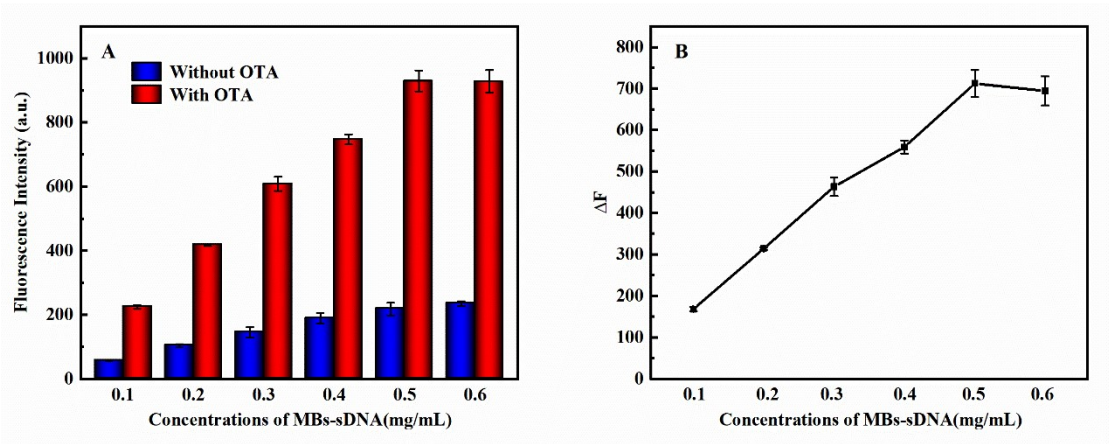

Fig. S3. (A) The effects of concentrations of MBs-sDNA (0.1, 0.2, 0.3, 0.4, 0.5 and 0.6 mg/mL) on the fluorescence intensity. (B) The effects of concentrations of MBs-sDNA on ΔF ($\Delta F=F-F_0$, where F and F_0 are the fluorescence signals of experimental with and without OTA group, respectively). Error bars were the standard deviation calculated by three repeated experiments.

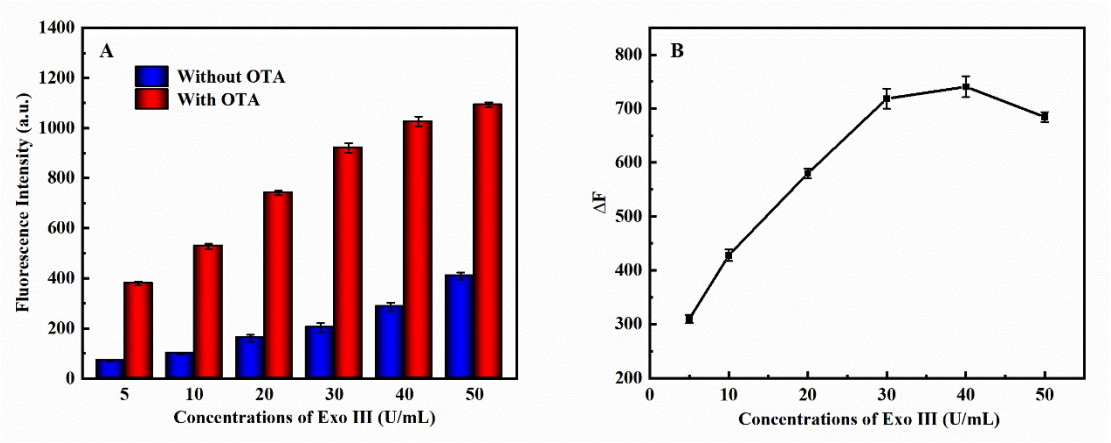

Fig. S4. (A) The effects of concentrations of Exo III (5, 10, 20, 30, 40, and 50 U/mL) on the fluorescence intensity. (B) The effects of concentrations of Exo III on ΔF. Error bars were the standard deviation calculated by three repeated experiments.

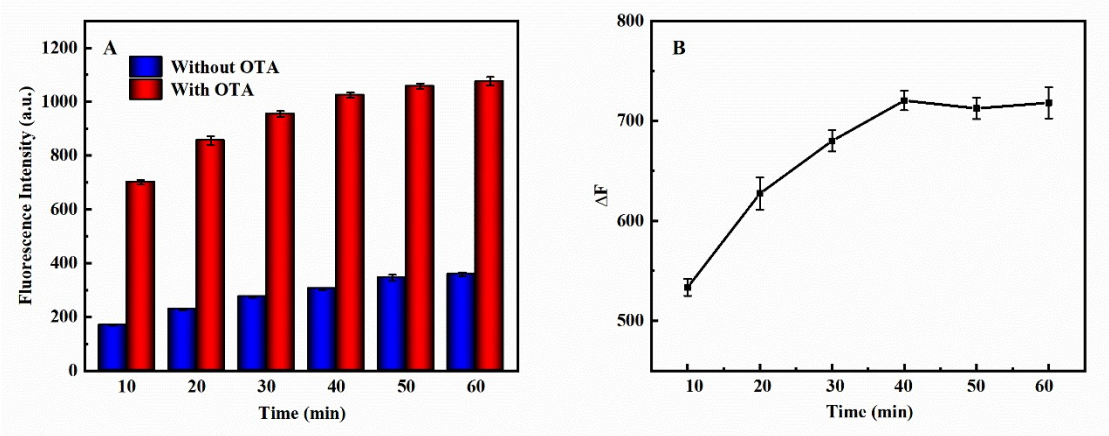

Fig. S5. (A) The effects of reaction time (10, 20, 30, 40, 50 and 60 min) of Exo III on the fluorescence intensity. (B) The effects of reaction time of Exo III on ΔF. Error bars were the standard deviation calculated by three repeated experiments.

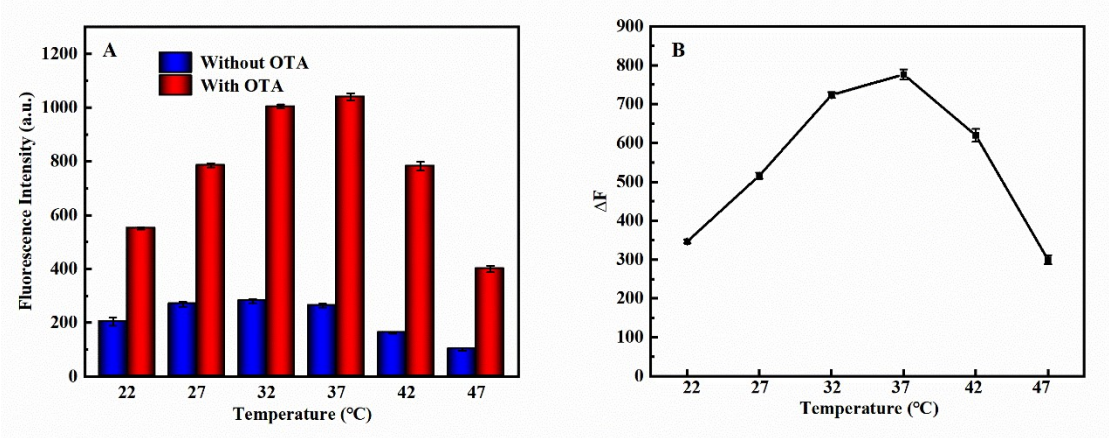

Fig. S6. (A) The effects of reaction temperature (22, 27, 32, 37, 42 and 47 ℃) of Exo III on the fluorescence intensity. (B) The effects of reaction temperature of Exo III on ΔF. Error bars were the standard deviation calculated by three repeated experiments.

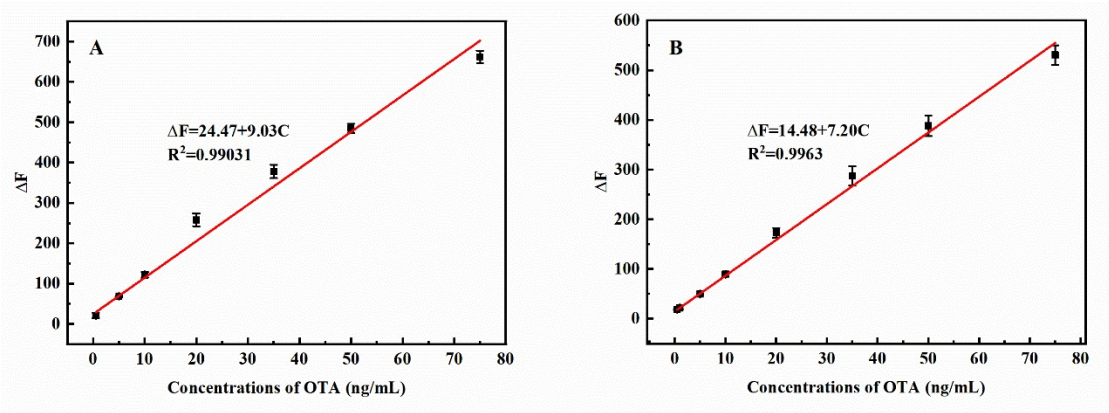

Fig. S7. The calibration curve between the enhanced fluorescence intensity (ΔF) and concentrations of OTA in real samples: (A) red wheat, and (B) corn. Error bars were the standard deviation calculated by three repeated experiments.