

OTA (Ochratoxin A) ELISA Kit

Catalog No: E-TO-E001

96T



This manual must be read attentively and completely before using this product.

If you have any problems, please contact our Technical Service Center for help.

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Please kindly provide us the lot number (on the outside of the box) of the kit for more efficient service.

Test principle

This kit uses Indirect-Competitive-ELISA as the method. It can detect Ochratoxin A (OTA) in samples, such as grain (rice, peanut, soybean, etc.) and feed. This kit is composed of ELISA Microplate, HRP conjugate, antibody, standard and other supplementary reagents. The micro-plate provided in this kit has been pre-coated with coupled antigen. During the reaction, OTA in the samples or standard competes with coupled antigen on the solid phase supporter for sites of anti-OTA antibody. Then Horseradish Peroxidase (HRP) conjugate is added to each micro plate well, and TMB substrate is for color development. There is a negative correlation between the OD value of samples and the concentration of OTA. The concentration of OTA in the samples can be calculated by comparing the OD of the samples to the standard curve.

Technical indicator

Sensitivity: 1 ppb (ng/mL)

Reaction mode: 37°C, 30 min~30 min~15 min

Detection limit: Grain---5 ppb Feed---10 ppb

Cross-reactivity: Ochratoxin A ---100%

Sample recovery rate: Grain/Feed---85% ± 15%

Kits components

Item	Specifications
ELISA Microplate	96 wells
Standard Liquid	1 mL each (0 ppb, 1 ppb, 3 ppb, 9 ppb, 27 ppb, 81 ppb)
HRP Conjugate	11 mL
Antibody Working Solution	5.5 mL
Substrate Reagent A	6 mL
Substrate Reagent B	6 mL
Stop Solution	6 mL
20×Concentrated Wash Buffer	40 mL
Plate Sealer	3 pieces
Sealed Bag	1 piece
Manual	1 copy

Note: All reagent bottle caps must be tightened to prevent evaporation and microbial pollution.

Other supplies required

Instrument: Microplate reader, Printer, Homogenizer, Oscillators, Centrifuge, Graduated pipette, Balance (sensitivity 0.01 g).

High-precision transferpeltor: Single channel (20-200 μL , 100-1000 μL), Multichannel (300 μL).

Reagents: Methanol, NaHCO_3 .

Experimental preparation

Bring all reagents and samples to room temperature before use.

Open the microplate reader in advance, preheat the instrument, and set the testing parameters.

1. Sample pretreatment Notice: experimental apparatus should be clean, and use disposable pipette tips to avoid cross-contamination during the experiment.

2. Solution preparation

Solution 1: 70% Methanol

Methanol (volume): Deionized water (volume) =7:3

Solution 2: 0.1 M NaHCO_3 Solution

Dissolve 4.2 g of NaHCO_3 with 500 mL of deionized water.

Solution 3: Wash Buffer

Dilute the 20 \times Concentrated Wash Buffer with deionized water. (20 \times Concentrated Wash Buffer (V): Deionized water (V) =1:19).

3. Sample pretreatment procedure

3.1. Pretreatment of grain (rice, corn, millet, etc.)

- (1) Weigh 4 g of crushed homogenate into 50 mL EP tube, add 10 mL of 70% methanol (Solution 1), oscillate for 5 min, centrifuge at 4000 r/min for 10 min at room temperature.
- (2) Take 1 mL of supernatant, add 1 mL of 0.1 M NaHCO_3 Solution (Solution 2), and mix fully.
- (3) Take 50 μL for detection and analysis.

Note: Sample dilution factor: 5, minimum detection dose: 5 ppb

3.2. Pretreatment of Feed:

- (1) Weigh 2 g of crushed homogenate into 50 mL EP tube, add 10 mL of 70% methanol (Solution 1), oscillate for 5 min, centrifuge at 4000 r/min for 10 min at room temperature.
- (2) Take 1 mL of supernatant, add 1 mL of 0.1 M NaHCO_3 Solution (Solution 2), and mix fully.
- (3) Take 50 μL for detection and analysis.

Note: Sample dilution factor: 10, minimum detection dose: 10 ppb

Assay procedure

Restore all reagents and samples to room temperature before use. All the reagents should be mixed thoroughly by gently swirling before pipetting. Avoid foaming.

- 1. Number:** number the sample and standard in order (multiple wells), and keep a record of standard wells and sample wells. **Standard and Samples need test in duplicate.**
- 2. Add sample:** add 50 μL of **Standard or Sample** per well, then add 50 μL of **antibody working solution**, cover the plate sealer, oscillate for 5 s gently to mix thoroughly, incubate shading light for 30 min at 37°C.
- 3. Wash:** uncover the sealer carefully, remove the liquid. Immediately add 300 μL of **Wash Buffer** to each well and wash. Repeat wash procedure for 5 times, 30 s intervals/time. Invert the plate and pat it against thick clean absorbent paper (If bubbles exist in the wells, clean tips can be used to prick them).
- 4. HRP Conjugate:** add 100 μL of **HRP conjugate** to each well, incubate shading light for 30 min at 37°C.
- 5. Wash:** repeat step 3.
- 6. Color Development:** add 50 μL of **substrate reagent A** to each well, and then add 50 μL of **substrate reagent B**. Gently oscillate for 5 s to mix thoroughly. Incubate at 37°C for 15 min with shading light (If the blue color is too shallow, can extend the incubation time properly).
- 7. Stop reaction:** add 50 μL of **stop solution** to each well, oscillate gently to mix thoroughly.
- 8. OD Measurement:** determine the optical density (OD value) of each well at 450 nm with a micro-plate reader (the 450/630 nm double wavelength is recommended). This step should be finished in 10 min after stop reaction.

Result analysis

- 1. Absorbance (%) = $A/A_0 \times 100\%$**

A: Average absorbance of standard or samples

A_0 : Average absorbance of 0 ppb Standard

- 2. Drawing and calculation of standard curve**

Create a standard curve by plotting the absorbance percentage of each standard on the y-axis against the log concentration on the x-axis to draw a semi-logarithmic plot. Add average absorbance value of sample to standard curve to get corresponding concentration. **If samples have been diluted, the concentration calculated from the standard curve must be multiplied by the dilution factor.**

For this kit, it is more convenient to use professional analysis software for accurate and fast analysis on a large number of samples.

Notes

1. The overall OD value will be lower when reagents have not been brought to room temperature before use or room temperature is below 25°C.
2. If the wells turn dry during the washing procedure, it will lead to bad linear standard curve and poor repeatability. Operate the next step immediately after wash.
3. Mix thoroughly and wash the plate completely. The consistency of wash procedure can strongly affect the reproducibility of this ELISA kit.
4. ELISA Microplate should be covered by plate sealer. Avoid the reagents to strong light.
5. **Do not use expired kit, reagents of different batches and reagents that do not belong to this kit.**
6. TMB (Substrate Reagent A or Substrate Reagent B) should be abandoned if it turns blue color. When OD value of standard (concentration: 0) < 0.5 unit (A450nm < 0.5), it indicates the reagent may be deteriorated.
7. Stop solution is caustic, avoid contact with skin and eyes.
8. As the OD values of the standard curve may vary according to the conditions of the actual assay performance (e.g. operator, pipetting technique, washing technique or temperature effects), the operator should establish a standard curve for each test.
9. Even the same operator might get different results in two separate experiments. In order to get reproducible results, the operation of every step in the assay should be controlled.
10. If the samples are not indicated in the manual, a preliminary experiment to determine the validity of the kit is necessary.
11. The kit is used for rapid screening of actual samples. If the test result is positive, the instrument method such as HPLC, LC/MS, etc. can be used for quantitative confirmation.

Storage and valid period

Store at 2~8°C for 1 year. Avoid freeze.

Please store the opened kit at 2~8°C, protect from light and moisture. The valid period is 2 months.

Expiry date: expiration date is on the packing box.