

Soil Peroxidase(S-POD) Activity Assay Kit

Note: Take two or three different samples for prediction before test.

Operation Equipment: Spectrophotometer/microplate reader

Catalog Number: BC0895

Size: 100T/48S

Components:

Regent I: Powder×1, storage at 4°C. Add 10 mL of distilled water when the solution will be used. It is suggested that the inexhaustible reagents should still be preserved at 4°C.

Regent II: 2 mL×1, storage at 4°C.

Regent III: 5 mL×1, storage at 4°C.

Regent IV: Diethyl ether 50 mL×1, storage at 4°C (self-provided reagent).

Standard: 10 mL×1, Storage at 4°C. Equivalent to 0.1 mg/mL of purple gallnut in per milliliter of diethyl ether.

Product Description :

S-POD mainly comes from soil microorganism, which can oxidize organic matter in soil to produce peroxide, which plays an important role in the process of humus formation. S-POD catalyze the oxidation of organic substances to quinone which has an absorption at 430 nm.

Reagents and Equipment Required but Not Provided:

Spectrophotometer/microplate reader, desk centrifuge, water-bath, adjustable pipette, micro glass cuvette/96-well flat-bottom plates, diethyl ether, mortar/homogenizer, ice and distilled water.

Procedure:

I Sample preparation:

Fresh soil sample : Air-drying or drying at 37°C oven, then passing through a 30-50 mesh sieve.

II Determination procedure:

1. Preheat the spectrophotometer/microplate reader for 30 minutes, adjust the wavelength to 430 nm, set zero with Reagent IV,
2. Standards preparation: Dilute the standard with 0.5 mol/L HCl to 0.1, 0.08, 0.06, 0.04, 0.02, 0.01, 0 mg/mL.
3. Establishment of standard curve: determine the absorbance of each concentration standard tube, and establish the standard curve according to the absorbance (x, minus the absorbance value of 0 concentration) and concentration (y).
4. Determination procedure:

| Reagent name | Test tube (A_T) | Substrate-free tube (A_S) |
|---------------------------|---------------------|-------------------------------|
| Air-dried soil sample (g) | 0.02 | 0.02 |

| | | |
|---|-----|-----|
| Distilled water | - | 20 |
| Regent I (μL) | 100 | 100 |
| Regent II (μL) | 20 | - |
| Shake to mix thoroughly, culture at 30°C for 1 hour. | | |
| Regent III (μL) | 50 | 50 |
| Regent IV (μL) | 430 | 430 |
| Oscillation several times, stand at room temperature for 30 minutes, set zero with distilled water. Take 0.2 mL of supernatant to detect the absorbance, record as A _T , A _S respectively, calculate ΔA=A _T - A _S . | | |

III Calculation:

According to the standard curve, bring ΔA(x) into the formula to calculate the y-value (mg/mL).

S-Unit definition: One unit of soil peroxidase activity is defined as the amount enzyme catalyzes the produce of 1 mg of purple gallnut every gram of soil sample per day.

$$S\text{-POD (U/g soil sample)} = y \times V \div W \div T = 516 \times y$$

V: The total volume of Extract solution, 0.43 mL;

T: Reaction time, 1 hour=1/24 day;

W: Sample weight, 0.02 g.

Note:

Each sample should provide one opposite substrate-free tube.

References:

[1] Doxey D L. The use of pyrogallol to demonstrate peroxidase in mammalian blood eosinophils[J]. Stain Technology, 1962, 37(6): 367-371.

[2] Nozaki O, Ji X, Kricka L J. New enhancers for the chemiluminescent peroxidase catalysed chemiluminescent oxidation of pyrogallol and purpurogallin[J]. Journal of bioluminescence and chemiluminescence, 1995, 10(3): 151-156.

Related Products:

BC0110/BC0115 Soil Polyphenoloxidase Activity Assay Kit

BC0100/BC0105 Soil Catalase(S-CAT) Activity Assay Kit