(FOR RESEARCH USE ONLY. DO NOT USE IT IN CLINICAL DIAGNOSIS!)

# Plant total phenol Assay Kit

Catalog No.: BC00187

Size: 50T

Please read the instructions carefully before use. If you have any questions or need further help during experiment, please don't hesitate to contact us through the following methods:


✉ Email (Sale) order@enkilife.com

✉ Email (Techsupport) techsupport@enkilife.com

☎ Tel: 0086-27-87002838

Website: www.enkilife.com


**Shelf life:** Please refer to the label on the outer package.

**Techsupport:** In order to provide you with better service, please inform us the lot number on the label of the outer package.

## Basic Information

| | |
|---|---|
| **Product Name** | Plant total phenol Assay Kit |
| **Detection Method** | Colorimetric |
| **Sample Type** | Plant |
| **Assay Type** | Quantitative |
| **Detection Instrument** | Spectrophotometer (760 nm) |

## Product Introduction

Plant phenolic substances can scavenge free radicals and exert antioxidant and anti-aging effects. With high nutritional value and healthcare functions, they are widely applied in cosmetics, food, pharmaceutical and other fields.

## Principle

Under alkaline conditions, phenolic substances reduce phosphotungstic-molybdic acid to form blue compounds with a characteristic absorption peak at 760 nm. The total phenolic content of the sample can be determined by measuring the absorbance at 760 nm.

## Components

| No. | Components | Size | Notes |
|---|---|---|---|
| Reagent 1 | Yellow Liquid | 8 mL | Store at 4°C |
| Reagent 2 | Colorless Liquid | 15 mL | Store at 4°C |
| Reagent 3 | 2000 μmol/L Standard | 1 mL | Store at 4°C. Preparation of 500 μmol/L standard solution: Dilute the 2000 μmol/L standard stock solution at a volume ratio of 1:3 (V:V) with 60% ethanol aqueous solution. Prepare fresh before use. |

## Storage

The kit has a validity period of 3 months.

## Preparation

Oven, grinder, 40-mesh sieve, ultrasonic homogenizer, mortar, centrifuge, visible spectrophotometer, 1 mL glass cuvette, 60% ethanol aqueous solution.

- **Sample handling**

1. Dry Sample Extraction: Dry the sample to constant weight, crush and sieve through a 40-mesh screen. Weigh approximately 0.1 g of the treated sample, add 2 mL of 60% ethanol aqueous solution, and perform ultrasonic extraction. Set the ultrasonic power at 300 W, with 5 seconds of sonication and 8 seconds of interval, and extract at 60 °C for 30 minutes. Centrifuge at 4000 rpm for 10 minutes, and collect the supernatant for testing.
2. Fresh Sample Extraction: Grind fresh or frozen plant samples into powder with liquid nitrogen. Weigh about 0.1 g of plant powder into a capped centrifuge tube, add 2 mL of 60% ethanol aqueous solution, tighten the cap, and vortex for 2–3 minutes for extraction. Then incubate at 60 °C for 30 minutes. Centrifuge at 4000 rpm for 10 minutes, and collect the supernatant to be tested.

Note: Before testing the supernatant, perform a pre-experiment using the supernatant of one normal group sample and one sample with expected significant differences to determine the optimal sampling concentration (OD of measurement tube − OD of control tube ≤ 0.9).

## Operation process

A control tube shall be prepared for each sample to reduce errors.

| | Blank tube | Standard tube | Assay tube | Control tube |
|---|---|---|---|---|
| 60% ethanol aqueous solution (μL) | 50 | | | |
| 500 μmol/L standard solution (μL) | | 50 | | |
| Sample supernatant (μL) | | | 50 | 50 |
| Reagent 1 (μL) | 250 | 250 | 250 | |

| | | | | |
|---|---|---|---|---|
| Mix well and incubate at room temperature for 2 minutes. | | | | |
| Reagent 2 (μL) | 250 | 250 | 250 | 250 |
| Distilled water (μL) | 450 | 450 | 450 | 700 |
| Mix thoroughly, stand at room temperature for 10 min, zero the instrument with distilled water, set the wavelength to 760 nm, use a 1 mL cuvette, and determine the absorbance value A of each tube. | | | | |

## Calculation

$$\text{Total Phenol Content in Plants (μmol/g)} = \frac{A_{Assay} - A_{Control}}{A_{Standard} - A_{Blank}} \times C_{Standard} \times V_{Total} \times N \div W$$

**Annotation:**

$V_{Total}$: Total volume of extract, 0.002 L

$C_{Standard}$: Standard solution concentration, 500 μmol/L

N: Dilution multiple of supernatant

W: Sample mass, g

## Precautions

1. It is recommended to use disposable laboratory test tubes for operation.
2. This product is intended for scientific research use only by professionals and must not be used for clinical diagnosis or treatment, in food or drugs, or stored in ordinary residences.
3. Reagent 1 is mildly irritating to the skin. Wear proper protective measures during operation.
4. In this experiment, the content can be calculated by establishing a standard curve, or calculated according to the formula after following the operating instructions; both methods do not affect the final results.
5. Samples can be either dried or used fresh as required. When the result unit is expressed as μg/g tissue, the corresponding average molecular weight of plant total phenols should be multiplied.
6. When the room temperature is 25 °C, the reaction can be carried out directly under indoor

conditions.

7. Avoid strong light exposure during the reaction process as much as possible.