Chlorophyll Content Assay Kit

Product Code: 112379

Plant Chlorophyll Content Assay Kit - Micro Method

Product Information

Product Code	112379
Product Name	Plant Chlorophyll Content Assay Kit - Micro Method
Assay Size	100T

Product Introduction

Plant chlorophyll is widely present in green plant tissues. Its content is closely related to photosynthesis and nutritional status, making it an important indicator of plant growth status.

Chlorophyll a and chlorophyll b have maximum absorption at 645 nm and 663 nm, respectively. Empirical formulas can be used to calculate chlorophyll a, chlorophyll b, and total chlorophyll content.

Reference Test Data

Sample	OD663nm	OD645nm
Sample 1: leaf beet	0.895 / 0.904	0.414 / 0.422
Sample 2: clover	0.454 / 0.463	0.212 / 0.22

Under different testing conditions, actual readings may vary depending on the testing instrument. The data above are for reference only.

Package Contents

Assay Size	Item Code	Component	Quantity
100T	112379.1	Reagent 1	6 g
100T	112379.m	Manual	1 copy

Quality Standards and Safety

Raw Material or Package Name	Quality Standard	Main Toxicity
Reagent 1	--	--

Transportation and Storage

Condition	Requirement
Transportation	Shipped with ice packs
Storage	Store at 2-8℃
Shelf Life	180 days

Required Materials Not Supplied

- Visible spectrophotometer or microplate reader

- Micro glass cuvette or 96-well plate
- Adjustable pipette
- Balance
- Mortar or homogenizer
- Aluminum foil
- 10 mL test tubes
- Acetone
- Distilled water

Instructions for Use

1. Prepare the Extraction Solution

Mix 240 mL distilled water with 960 mL acetone thoroughly. Set aside for use.

2. Assay Procedure

1. Weigh fresh plant leaves or other green tissues. Remove the midrib, weigh approximately 0.1 g, cut into pieces, and wash clean with distilled water.
2. Add 1 mL distilled water and a small amount of Reagent 1, approximately 10 mg. Grind thoroughly in the dark or under low-light conditions, then transfer to a 10 mL glass test tube.
3. Rinse the mortar with extraction solution. Transfer all rinse liquid to the glass test tube, then use extraction solution to bring the volume to 10 mL.
4. Place the glass test tube in the dark or wrap it with aluminum foil. Soak and extract for 3 h.
5. Check whether the tissue residue at the bottom of the test tube has completely turned white. If it has not, continue soaking and extracting until it turns completely white.
6. Transfer 200 μL of the extract into a micro glass cuvette or 96-well plate.
7. Use the extraction solution to zero the instrument. Measure absorbance at 663 nm and 645 nm, and record the values as A663 and A645, respectively.

Calculations

Chlorophyll a content (mg/g, fresh weight) = (12.7 × A663 - 2.69 × A645) × Vextract × N ÷ W ÷ 1000 = 0.01 × (12.7 × A663 - 2.69 × A645) × N ÷ W

Chlorophyll b content (mg/g, fresh weight) = (22.9 × A645 - 4.68 × A663) × Vextract × N ÷ W ÷ 1000 = 0.01 × (22.9 × A645 - 4.68 × A663) × N ÷ W

Total chlorophyll content (mg/g, fresh weight) = (20.21 × A645 + 8.02 × A663) × Vext × N ÷ W ÷ 1000 = 0.01 × (20.21 × A645 + 8.02 × A663) × N ÷ W

Symbol	Meaning
Vext	Extraction liquid volume, 10 mL
N	Dilution factor
W	Sample mass, g

Precautions

1. Before the formal assay, select 2-3 samples with large expected differences for preliminary testing.
2. This 100T kit can test 96 samples.
3. Chlorophyll is light-sensitive. Grinding, extraction, and related operations must be performed away from light or under dim light.
4. Extract until the tissue residue turns completely white. Otherwise, extraction will be insufficient.
5. When rinsing the mortar with extraction solution, rinse until all green material has been transferred to the glass test tube.
6. If the absorbance value exceeds 1 during measurement, dilute appropriately.
7. If the absorbance value is less than 0.05, the amount of extraction solution may be appropriately reduced to increase the sample concentration. Modify the Vext value in the formula accordingly.
8. Acetone is corrosive. If a polystyrene 96-well plate is used for measurement, complete the measurement as soon as possible

within 5 min.