Plant Free Fatty Acids Content Assay Kit - Micro Method

Product Code

112385

Product Introduction

Free fatty acids (FFA) are both products of fat hydrolysis and substrates for fat synthesis. FFA concentration is related to lipid metabolism, glucose metabolism, and endocrine function, and it can also reflect quality changes during food storage.

Under weakly acidic conditions, FFA reacts with copper salts to form copper soap, which has a characteristic absorption peak at 715 nm. Within a certain range, free fatty acid content has a linear relationship with the degree of color development.

Product Packing List

Package Size	Product Code	Component	Quantity
100T	112385.1	Reagent I	1 bottle
100T	112385.2	Reagent II	1 bottle
100T	112385.3	Reagent III	1 bottle
100T	112385.m	Instructions	1 copy

Quality Standards and Safety Instructions

Raw Material and Packaging Name	Quality Standard	Main Toxicity
Reagent I	--	--
Reagent II	--	--
Reagent III	--	--

Transportation and Storage

Transportation	Shipped with ice packs.
Storage	Store at 2-8°C. Shelf life is 180 days.

Instructions for Use

1. Sample Processing

1. Thoroughly rinse the tissue with distilled water.
2. Absorb surface moisture with absorbent paper and homogenize the tissue.
3. Add Reagent I at a tissue mass (g) to extraction solution volume (mL) ratio of 1:5-10. It is recommended to weigh approximately 0.1 g tissue and add 1 mL Reagent I.
4. Shake and extract for 3 h.
5. Centrifuge at 8000 g and 4°C for 10 min.
6. Collect the supernatant for testing.

2. Measurement Procedure

1. Preheat the spectrophotometer or microplate reader for 30 minutes and set the wavelength to 715 nm.
2. Prepare the control tube and measurement tube according to the table below.

Component	Control Tube	Measurement Tube
Supernatant (μL)	400	400
Reagent II (μL)	200	-
Reagent III (μL)	-	200

1. Shake thoroughly for 5 min.
2. Let stand at room temperature for 5 min.
3. Transfer 200 μL of the upper layer into a micro quartz cuvette or 96-well plate.
4. Zero with the control tube and record the absorbance value of the measurement tube as A.

Calculation of Free Fatty Acid Content

1. Micro Quartz Cuvette Measurement

Standard curve: y=0.0075x+0.0055, R^2=0.994

Calculated by Sample Protein Concentration

FFA (nmol/mg prot) = (A-0.0055) ÷ 0.0075 × V1 ÷ (V1 × Cpr) = 133 × (A-0.0055) ÷ Cpr

Calculated by Sample Mass

FFA (nmol/g, fresh weight) = (A-0.0055) ÷ 0.0075 × V1 ÷ (V1 ÷ V2 × W) = 133 × (A-0.0055) ÷ W

V1	Sample volume added, 0.4 mL
V2	Extract volume, 1 mL
Cpr	Sample protein concentration, mg/mL
W	Sample mass, g

2. 96-Well Plate Measurement

Standard curve: y=0.0038x+0.0055, R^2=0.994

Calculated by Sample Protein Concentration

FFA (nmol/mg prot) = (A-0.0055) ÷ 0.0038 × V1 ÷ (V1 × Cpr) = 263 × (A-0.0055) ÷ Cpr

Calculated by Sample Mass

FFA (nmol/g, fresh weight) = (A-0.0055) ÷ 0.0038 × V1 ÷ (V1 ÷ V2 × W) = 263 × (A-0.0055) ÷ W

V1	Sample volume added, 0.4 mL
V2	Extraction solution volume, 1 mL
Cpr	Sample protein concentration, mg/mL
W	Sample mass, g

Precautions

1. This 100T kit can test 48 samples.
2. Protein content cannot be measured directly using the extracted supernatant. Use distilled water and a BCA method protein content assay kit.
3. The minimum detection limit is 2 nmol/mL.

Visual Reference