

Plant Free Fatty Acids Content Assay Kit - Microplate Method

Product Information

Product Code	112386
Assay Size	100T
Detection Method	Microplate method

Product Introduction

Free fatty acids (FFA) are both products of lipid hydrolysis and substrates for lipid 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 color development intensity.

Actual readings may vary under different testing conditions and with different instruments. Reference images or example data are for reference only.

Package Contents

Code	Component	Quantity
112386.1	Reagent 1	1 bottle
112386.2	Reagent 2	1 bottle
112386.3	Reagent 3	1 bottle
112386.m	Manual	1 copy

Quality Standards and Safety Information

Raw Material or Packaging Name	Quality Standard	Main Toxicity
Reagent 1	--	--
Reagent 2	--	--
Reagent 3	--	--

Shipping and Storage

Shipping	Shipped with ice packs.
Storage	Store at 2-8°C.
Shelf Life	180 days.

Instructions for Use

1. Sample Processing

1. Rinse the tissue thoroughly with distilled water.
2. Absorb surface moisture with absorbent paper.
3. Homogenize the tissue.

4. 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.
5. Shake for extraction for 3 h.
6. Centrifuge at 8000g, 4°C for 10 min.
7. Collect the supernatant for testing.

2. Measurement Procedure

1. Preheat the microplate reader for 30 min and set the wavelength to 715 nm.
2. Prepare the control tube and test tube according to the table below.

Component	Control Tube	Test Tube
Supernatant	400 μ L	400 μ L
Reagent II	200 μ L	-
Reagent III	-	200 μ L

1. Shake thoroughly for 5 min.
2. Let stand at room temperature for 5 min.
3. Transfer 200 μ L of the upper layer into a 96-well plate.
4. Zero with the control tube and measure the absorbance of the test tube. Record the value as A.

3. Calculation of Free Fatty Acid Content

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

3.1 Calculation Based on Sample Protein Concentration

$$\text{FFA (nmol/mg prot)} = (A - 0.0055) \div 0.0038 \times V1 \div (V1 \times \text{Cpr}) = 263 \times (A - 0.0055) \div \text{Cpr}$$

3.2 Calculation Based on Sample Mass

$$\text{FFA (nmol/g fresh weight)} = (A - 0.0055) \div 0.0038 \times V1 \div (V1 \div V2 \times W) = 263 \times (A - 0.0055) \div W$$

Symbol	Description
V1	Volume of sample added, 0.4 mL
V2	Volume of extract, 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 or a BCA protein content assay kit.
3. The minimum detection limit is 2 nmol/mL.

Visual Reference