Sorbitol Content Assay Kit

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

Operation Equipment: Spectrophotometer

Catalog Number: NA0690

Size:50T/48S

Components:

Reagent I: 15 mL×1, storage at 4℃.

Reagent II: 15 mL×1,storage at 4℃.

Standard: 10 mg×1, storage at 4℃. Dissolve the standard with 1 mL of distilled water at a concentration of 10 mg/mL and dilute to 4, 2, 1, 0.5, 0.25, 0.125, 0 mg/mL.

Product Description

Sorbitol is widely found in animals, plants, microorganisms and cultured cells. It's a form of sugar transport, and also closely related to biological resistance and food flavor. Therefore, it is often necessary to detect the changes of sorbitol content in sugar metabolism, stress resistance and food research.

Sorbitol can form blue complex with copper ions in alkaline solution, which has characteristic absorption peaks at 655 nm.

Reagents and Equipment Required but Not Provided.

Spectrophotometer, desk centrifuge, transferpettor, 1 mL glass cuvette, mortar/homogenizer, ice and distilled water.

Procedure:

I.   Sample extraction:

Suggest that weight about 0.2 g tissue with 2 mL distilled water. Fully grinding, 95℃ water bath for 10 minutes (cover tightly to prevent moisture loss), after cooling, 8000 g 25℃ centrifuge for 10 min. Supernatant is used for test.

II.   Determination procedure:

1.   Preheat the spectrophotometer 30 min, adjust wavelength to 655 nm, set zero with distilled water.

2.   Sampling table (add the following regents in EP tube)

Reagent (μL)	Standard Tube	Test Tube
Reagent I	150	150
Reagent II	140	140
Sample		1000
Standard	1000	

Mix well, place at room temperature for 15 min, centrifuge at 10000 g and 25℃ for 10 min and take supernatant to detect the absorbance at 655 nm(A).

III. Calculation:

1. According to concentration of standard solution and absorbance to create the standard curve, take standard solution as Y-axis, absorbance as X-axis. Calculate the content of sorbitol in sample: y(mg/mL).

2. Sample weight

Sorbitol (mg/g fresh weight) = $y \times V1 \div (W \times V1 \div V2) = 2 \times y \div W$

3. Protein concentration

Sorbitol (mg/mg prot) = $y \times V1 \div (V1 \times Cpr) = y \div Cpr$

V1: sample volume, 1 mL;

V2: extraction volume, 2 mL;

Cpr: sample protein concentration, mg/mL;

W: Sample weight, g.

Note:

If the measured absorbance value exceeds the linear range, the sample size can be increased or the sample can be diluted before measurement.

References:

Salvucci M E, Stecher D S, Henneberry T J. Heat shock proteins in whiteflies, an insect that accumulates sorbitol in response to heat stress[J]. Journal of Thermal Biology, 2000, 25(5): 363-371.

Related Products:

NA0840/NA0598   Glucogen Content Assay Kit

NA0688/NA0447   Cellulase(CL) Activity Assay Kit

NA0841/NA0599   Trehalose Content Assay Kit

NA0693/NA0452   Blood Glucose Content Assay Kit

NA0689/NA0448   Sorbitol Dehydrogenase(SDH) Activity Assay Kit

Technical Specification:

The detection limit: 0.0261 mg/mL

Linear range: 0.0625-4 mg/mL