Hemicellulose Content Assay Kit

Note: It is necessary to predict 2-3 large difference samples before the formal determination.

Operation Equipment: Spectrophotometer

Cat No: BC4440

Size: 50T/48S

Components:

Extract solution I: 30 mL × 1, stored at RT;

Extract solution II: 30 mL × 1, stored at RT;

Reagent I: 60 mL 80% ethanol × 1, required but not provided, stored at 4℃;

Reagent II: 10 mL × 1, stored at 4℃;

Standard: Powder × 1, 10 mg of D-xylose, stored at 4℃. Just before use, add 1 mL of distilled water to dissolve to prepare a standard solution of 10 mg/mL. It could be stored at 4℃ for 4 weeks.

Product Description:

Hemicellulose refers to the part of plant polysaccharide that is symbiotic with cellulose in the cell wall of plants and soluble in alkaline solutions. It is much easier to hydrolyze than cellulose after encountering acid. It is widely present in plants. Its distribution varies greatly depending on plant species, maturity, morning and evening wood, cell types and their morphological parts. A plant often contains several hemicellulose composed of two or three sugar groups. Hemicellulose has different chemical structure. Hemicellulose is a new type of available energy source.

Required material

Spectrophotometer, balance, desk centrifuge, water bath, transferpettor, 1 mL glass cuvette, mortar, 30-50 mesh sieve, ice and distilled water.

Procedure:

I. Sample processing:

Samples are air-dried or oven-dried to constant weight. After the mortar is fully ground, pass through a 30-50 mesh sieve.

II. Determination procedure:

1 Preheat the spectrophotometer 30min, adjust wavelength to 540nm, set zero with distilled water.

2 Standard working solution: dilute the standard with distilled water to 2.5、2、1、0.8、0.6、0.4 mg/mL standard solution.

3 Add reagents with the following list:

Reagent	Blank tube (B)	Test tube(T)	Standard tube(S)
Sample（g）		0.05	
Reagent I（μL）		1000	
Vortex to mix, place in a water bath at 90℃ for 10 min, and centrifuge at 8000 g for 10 min at 25 ℃. Discard the supernatant and leave the pellet.			
Distilled water（μL）		1000	

Vortex, centrifuge at 8000 g for 10 min at 25℃, discard the supernatant, repeat this step three times, take the pellet, and dry to constant weight.			
Extract solution I（μL）	500	500	
Place in 90 ℃ water bath for 1 h, then naturally cooled to room temperature.			
Extract solution II（μL）	500	500	
Vortex, centrifuge at 8000 g for 10 min at 25℃, and take the supernatant for measurement.			
Supernatant（μL）	125	125	
Standard solution（μL）			125
Reagent II（μL）	125	125	125
Distilled water（μL）	750	750	750
Vortex to mix, place in a water bath at 90℃ for 5 minutes, and cool to room temperature			
Take 1 mL of the reaction solution in a 1 mL glass cuvette, and measure the absorbance A at 540 nm, and record it as A_S, A_T, and A_B, and calculate $\triangle A_S = A_S - A_B$, $\triangle A_T = A_T - A_B$. Standard curve and blank tube only need to be measured once or twice.			

III. Calculation:

1 Standard curve drawing:

Taking the concentration of each standard solution as the y-axis and its corresponding ΔA_S as the x-axis, draw a standard curve to get the standard equation y = kx + b, and bring ΔA_T into the equation to get y (mg/mL).

2 Calculation of hemicellulose content

Hemicellulose content (mg / g dry weight) = $y \times V_{TS} \div W \times F = y \div W \times F$

V_{TS}: volume of extraction solution added, 1 mL;

W: sample weight, g;

F: dilution factor.

Note

1. If the measured absorbance value exceeds the absorbance value in the linear range, you can increase the sample volume or dilute the sample before performing the measurement.

2. It is recommended to dilute the supernatant（adding extract 2 and centrifuge）by 10-20 times before testing. Pay attention to multiply by the dilution factor in the calculation formula.

Related Products:

BC3330/BC3335 Glycogen synthase(GCS) Activity Assay Kit

BC3360/BC3365 UDP-glucose pyrophosphosphprylase(UGP) Activity Assay Kit

BC4290/BC4295 N-Acetyl-β-D-Glucosidase(NAG) Activity Assay Kit

Technical Specifications：

Minimum Detection Limit：0.2311 mg/mL

Linear Range：0.4-2.5 mg/mL