Hemicellulose Content Assay Kit

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

Operation Equipment: Spectrophotometer/ Microplate reader

Cat No: BC4445

Size: 100T/96S

Components:

Extract solution I: 60 mL × 1, stored at RT;

Extract solution II: 60 mL × 1, stored at RT;

Reagent I: 100 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.

Reagents and Equipment Required but Not Provided

Spectrophotometer/microplate reader, balance, desk centrifuge, water bath, transferpettor, micro glass cuvette/96 well flat-bottom plate, 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/microplate reader 30min, adjust wavelength to 540nm, set spectrophotometer counter to zero with distilled water.

2 Standard working solution: dilute the standard with distilled water to 1、0.9、0.8、0.6、0.4、0.2 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.			

Vortex, centrifuge at 8000 g for 10 min at 25℃, discard the supernatant, repeat this step three

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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）	80	80	
Standard solution（μL）			80
Reagent II（μL）	80	80	80
Distilled water（μL）	160	160	160
Vortex to mix, place in a water bath at 90℃ for 5 minutes, and cool to room temperature			
Take 200 μL of the reaction solution in a micro glass cuvette/96-well plate, 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：0.1516 mg/mL

Linear Range：0.2-1 mg/mL