D-Xylose Content Assay Kit

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

Operation Equipment: Spectrophotometer/ Microplate reader

Catalog Number: BC4395

Size:100T/96S

Components:

Extract solution: 55mL×1, storage at 4℃.

Reagent 1A: Powder×4, storage 4℃.

Reagent 1B: 40mL×1, storage at 4℃.

Standard: Powder×1, storage at 4℃. 10mg of D-xylose. Add 1 mL of distilled water to prepare a 10 mg/mL xylose standard solution.

Preparation of Reagent 1: Add 10mL of Reagent 1B to each Reagent 1A before use and dissolve. The unused reagent can be stored at 4℃ for 1 week. If the color of reagent changes into yellow, it has deteriorated.

Product Description:

Xylose is a type of pentose. Natural D-xylose exists in plants in the form of polysaccharides. Xylose can activate and promote the growth of bifidobacteria in the human intestinal tract. Bifidobacteria are beneficial bacteria. The more bacteria, the more beneficial to human health. Eating xylose can improve the human microbial environment and improve the immune system of the body. After being absorbed in the upper small intestine, sugar does not participate in metabolism in the body and is excreted by the kidneys. Therefore, the absorption of D-xylose has been an important functional indicator of small intestinal malabsorption.

D-xylose is hydrolyzed to produce furfural under strong acid conditions. Furfural can react with resorcinol to form pink compounds. It has a special absorption peak at 554 nm. Based on this, the content of xylose in the sample can be calculated from the absorbance.

Reagents and Equipment Required but Not Provided:

Spectrophotometer/Microplate reader, Centrifuge, water bath/constant temperature incubator, adjustable transferpettor, balance, mortar/homogenizer, micro glass cuvette/ 96 well flat-bottom plate, EP tube, acid and distilled water.

Sample preparation:

1. Plant samples: The tested plant samples are dried in a blast oven at 65℃, ground into a powder, and pass through a 30-50 mesh sieve. According to weight (g): volume of extract solution (mL)= 1: 50 ~ 100 ratio (we recommend to weigh 10 mg of dry sample and add 0.5 mL of extract solution), vortex to mix, hydrolyze in 100℃ water bath for 2 h, then centrifuge at 10000 rpm and room temperature for 15

   min, discard the pellet, and take the supernatant for testing;

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2. Other tissue: According to weight (g): volume of extract solution (mL)= 1: 5~10 ratio (we recommend to weigh 0.05g sample and add 0.5 mL extract solution), homogenize in ice bath, and hydrolyze in a 100℃ water bath 2 h, then centrifuge at room temperature and 10000 rpm for 15 min, discard the precipitate, and take the supernatant on ice for testing;
3. Serum (plasma) samples: directly test.

Procedure:

1. Preheat spectrophotometer/ microplate reader for 30 min, adjust the wavelength to 554 nm. The spectrophotometer needs to be zeroed with distilled water.
2. Standard solution: The standard is diluted with distilled water to 0.8、0.5、0.25、0.125、0.0625、0.03125、0.015625mg/mL.
3. Operation table: (operation in 1.5mL EP tube):

Reagent name（μL）	Test tube (A_T)	Standard tube (A_S)	Blank tube (A_B)
Sample	50	-	-
Standard solution	-	50	-
Distilled water	-	-	50
Reagent 1	250	250	250
After mixing, boil in a water bath for 8 minutes (wrap the sealing film to prevent explosion cover), then cool to room temperature in an ice bath and measure the absorbance at 554 nm. Record the results as A_T, A_S, and A_B. calculate $\Delta A_T=A_T - A_B$, $\Delta A_S =A_S - A_B$, the standard curve and blank tube only need to be measured 1-2 times.			

Calculation:

1. Taking the concentration of each standard solution as the x-axis and its corresponding ΔA_S as the y-axis, draw a standard curve to get the standard equation y = kx + b, and bring ΔA_T into the equation to get x (mg / mL)
2. **Plant sample:**
   D-xylose (mg/g weight) = Ve×x÷W1 = 0.5x÷W1
3. **Other sample:**
   D-xylose (mg/g weight) = Ve×x÷W2=0.5x÷W2
4. **Liquid volume:**
   D-xylose (mg/mL) = Vs×x÷Vs=x

   Vs: sample volume, 0.05mL;
   Ve: volume used in the extraction solution, 0.5mL;
   W1: Fresh weight of plant sample, g;
   W2: Fresh weight of other sample, g.

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1. When the A is higher than 0.9, it is recommended to test the sample after dilution and multiply it by the dilution factor in the calculation formula.
2. Reagent 1B has a strong irritating odor. Excessive inhalation is harmful to the human body, so it is recommended to operate in a fume hood.

Experimental Examples:

1. Take 0.05g of Euonymus stem，and add 0.5 mL of extract solution for sample processing, take the supernatant and dilute 2 times according to the determination procedure, measure by the 96 well plate and calculate $\Delta A=A_T-A_B=0.345-0.045=0.3$, Bring in the standard curve y=1.5448x-0.0132, calculate x=0.203, and calculate according to the formula:

D-Xylose Content (mg/g)=x×V extraction÷W1×2 (dilution multiple)= 0.203×0.5÷0.05×2=4.06 mg/g.

Related Products:

BC2620/BC2625	β-xylosidase Activity Assay Kit
BC2690/BC2695	Glucose Dehydrogenase(GCDH) Activity Assay Kit
BC4290/BC4295	N-Acetyl-β-D-Glucosidase(NAG) Activity Assay Kit

Technical Specifications：

Minimum Detection Limit：0.0007 mg/mL

Linear Range：0.0078-0.9 mg/mL

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