FUJIFILM

Wako

Code No. 017-26371 (5 g)
015-26372 (25 g)

α-Amylase
α-アミラーゼ

Source : *Bacillus amyloliquefqciens*
Appearance : White to grayish brown, powder
Activity : Indicated on the label
Optimal pH : 5.9
Optimal temperature : 70℃

【Assay Method】

1. Principle

$$\text{Starch} + n\text{H}_2\text{O} \xrightarrow{\alpha\text{-Amylase}} n\text{Maltose} + \text{Dextrin}$$

2. Reagents

A. Acetate buffer, pH 4.8
Dissolve 0.65 g of Sodium Acetate in 400 mL of water. After adjusting pH to 4.8 using Acetic Acid (1+2), add water to bring the volume up to 500 mL.

B. Starch solution
Suspend 1g of soluble Starch in 10 mL of Reagent A. Add 80 mL of Reagent A which is heated to approximately 90℃. Then dissolve by boiling for 1 minute. After cooling, adjust pH to 4.8 using Acetic Acid (1+100) or 0.1 mol/L Sodium Hydroxide solution. Add Reagent A to bring the volume up to 100 mL.

C. 3, 5-Dinitrosalicylic Acid solution
Dissolve 0.5 g of 3, 5-Dinitrosalicylic Acid in 20 mL of 1 mol/L Sodium Hydroxide solution. After dissolve by heating, add 25 mL of water and 1.5 g of Potassium Sodium (+)-Tartrate Tetrahydrate. Add water to bring the volume up to 50 mL.

D. Maltose standard solution (1 mg/mL)
Dissolve 50 mg (weighted correctly) of Maltose Monohydrate in Reagent A and bring up to a final volume of 50 mL.

E. Enzyme solution (0.01 mg/mL)
Dissolve 10.0 mg (weighted correctly) of α-Amylase in Reagent A and bring up to a final volume of 100 mL. Add Reagent A to 5 mL of the Solution and bring up to a final volume of 50 mL.

3. Procedure

3-1. Assay

Reagent	Test	Blank
E	1 mL	−
A	−	1 mL
B	1 mL	1 mL
	Incubate at 20℃ for 3 minutes correctly.	
C	2 mL	2 mL

Heat for 10 minutes in boiling bath. After cooling with running water, add water for to bring the volume up to 50 mL. Measure the absorbance at 485 nm of wavelength using a 10 mm cell with blank as a reference.
Trans *
沸騰水浴中で 10 分間加熱した後、流水で冷却し、水を加えて 50mL とする。空試験液を対照に吸収セル 10mm を用いて、波長 485nm における吸光度を測定する。

3-2. Standard

Reagent	Maltose standard solution (mg)			Control solution
	1.0	2.0	3.0	
D	1 mL	2 mL	3 mL	−
Water	2 mL	1 mL	−	3 mL
C	2 mL	2 mL	2 mL	2 mL

Heat for 10 minutes in boiling bath. After cooling with running water, add water to bring the volume up to 50 mL. Measure the absorbance at 485 nm of wavelength using a 10 mm cell.
Trans *
沸騰水浴中で 10 分間加熱した後、流水で冷却し、水を加えて 50mL とする。吸収セル 10mm を用いて、波長 485nm における吸光度を測定する。

4. Unit Definition

One unit is the amount of enzyme which produces 1 mg of maltose from starch as substrate for 3 minutes at 20℃, pH 4.8.

(Calculation)

$$\text{units/mg} = a \times \frac{100}{S} \times \frac{50}{5}$$

a : Amount of maltose (mg) in Reagent E calculated from Standard Curve
S : The measured amount of α-Amylase

Trans *

4. 単位の定義

でんぷんを基質として pH 4.8、20℃において 3 分間に 1mg のマルトースを生成する酵素量を 1unit とする。

(計 算)

$$\text{units/mg} = a \times \frac{100}{S} \times \frac{50}{5}$$

a : 検量線から求めた試液 E のマルトース量 (mg)
S : 量り取った本品の質量 (mg)

【Storage】 Store at 2-10℃.

【Packages】

Code No.	Packaging
017-26371	5 g
015-26372	25 g

＊ : Trans is the Japanese translation.

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