Tissue Inorganic Phosphorus Content Assay Kit

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

Detection instrument: Spectrophotometer

Catalog Number: BC2840

Size: 50T/48S

Components:

Reagent I: Liquid 60 mL×1, store at 2-8℃.

Reagent II: Liquid 10 mL×1, store at 2-8℃.

Reagent IIIA: Powder×1, store at 2-8℃. Add 10 mL of distilled water to fully dissolve. Unused reagent is still stored at 2-8℃ for four weeks.

Reagent IIIB: Powder×1, store at 2-8℃. Add 10 mL of distilled water to fully dissolve. Unused reagent is still stored at 2-8℃ for four weeks.

Reagent III: Reagent IIIA, Reagent IIIB and Reagent II are mixed by the ratio of 1:1:1 to make Reagent III before use. Prepared Reagent III is light yellow. It is colorless if the reagent is invalid. It is blue if the reagent is contaminated with phosphorus. Prepared Reagent III could only be used the same day.

Standard: Liquid 1 mL×1, 10 mmol/L inorganic phosphorus standard, store at 2-8℃.

Product Description:

Inorganic phosphorus mainly refers to phosphate radical, which is involved in many kinds of metabolism, including energy metabolism, nucleic acid metabolism, protein phosphorylation and dephosphorylation, and so on. In addition, inorganic phosphorus promotes the synthesis, transformation and transport of carbohydrates.

Molybdenum blue can react with phosphate group, the reaction product can be detected by colorimetric assay at 660nm and calculate the inorganic phosphorus content indirectly.

Required Material

Spectrophotometer, centrifuge, water bath, 1mL glass cuvette, transferpettor, homogenizer/mortar, distilled water.

Procedure:

I. Sample Extraction:

Suggest 0.1g of sample with 1mL of Reagent I, fully grind on ice, centrifuge at 10000 rpm and 4℃ for 10 minutes, supernatant is used for test.

II. Determination Procedure:

1. Preheat the spectrophotometer for 30min, adjust wavelength to 660nm, set zero with distilled water.
2. Set the temperature of water bath to 40℃.
3. Preparation of 1 mmol/L standard solution : 100μL 10 mmol/L phosphorus standard solution and 900μL distilled water mixed to prepare 1 mmol/L standard solution.

4. Add reagents with the following list:

Reagent (μL)	Blank tube (A_B)	Standard tube (A_T)	Test tube (A_S)
Standard	-	50	-
Supernatant	-	-	50
Distilled water	500	450	450
Reagent III	500	500	500

Mix well, 40℃ water bath for 10 minutes, detect the absorbance at 660 nm after cooling at room temperature for 10 minutes. Record as A_B, A_S and A_T respectively. Standard tube and blank tube only need to be measured once or twice. **The results should be determined within 40 minutes**

III. Calculation:

Inorganic phosphorus content(mmol/g weight) $=[C\times(A_T- A_B)\div(A_S - A_B)]\times V\div W$

$=0.001\times(A_T - A_B)\div(A_S - A_B)\div W$

C: standard concentration, 1 mmol/L;

V: supernatant volume, 1 mL=0.001 L;

W: Sample weight, g.

Note:

1. When the determination of A is greater than 0.8, it is recommended to dilute supernatant with distilled water before performing the measurement and multiply the dilution factor in the calculation formula.

Experimental example:

1. 0.1g liver is added with 1 mL of Reagent I, and the supernatant is centrifuged. Then, the determination procedure is followed. A_T = 0.789, A_B= 0.016, A_S= 0.429. Calculate inorganic phosphorus content according to the sample weight:
   Inorganic phosphorus content (mmol/g weight) $=0.001\times(A_T-A_B)\div(A_S-A_B)\div W=0.019$ mmol/g weight.

Related Products:

1. Bu J, Yu J, Wu Y, et al. Hyperlipidemia affects tight junctions and pump function in the corneal endothelium[J]. The American Journal of Pathology, 2020.

Related Products:

BC2860/BC2865	Serum Total Iron Binding Capacity (TIBC) Assay Kit
BC2850/BC2855	Total Phosphorus Content Assay Kit
BC4350/BC4355	Tissue Iron Content Assay Kit
BC4380/BC4385	Blood Ammonia Content Assay Kit

Technical Specifications:

The detection limit: 0.0576 mmol/L

Linear range: 0.0625-2 mmol/L