Soil Neutral Protease Activity Assay Kit

Product Code: 67034

Soil Neutral Protease Activity Assay Kit - Micro Method

Product Information

Product Code	67034
Abbreviation	S-NPT
Format	100T

Product Introduction

Soil protease participates in the conversion of amino acids, proteins, and other nitrogen-containing organic compounds in soil. Its hydrolysis products are one source of nitrogen for higher plants.

S-NPT catalyzes protein hydrolysis in a neutral environment and is related to soil organic matter content, nitrogen, and other soil properties. Under neutral conditions, S-NPT hydrolyzes casein to produce tyrosine. Under alkaline conditions, tyrosine reduces phosphomolybdic acid compounds to form tungsten blue, which has a characteristic absorption peak at 680 nm.

Actual readings may vary under different test conditions and with different instruments.

Product Packing List

Catalog No.	Component	Quantity
67034.1	Reagent I	1 bottle
67034.2	Reagent II	1 bottle
67034.3	Reagent III	1 bottle
67034.4	Reagent IV	1 bottle
67034.5	Reagent V	1 bottle
67034.6	Reagent VI	1 tube
67034.7	Reagent VII	1 bottle
67034.m	Instruction Manual	1 copy

Quality Standards and Safety Information

Raw Material or Packaging Name	Quality Standard	Main Toxicity
Reagent I	--	--
Reagent II	--	--
Reagent III	--	--
Reagent IV	--	--
Reagent V	--	--
Reagent VI	--	--
Reagent VII	--	--

Transportation and Storage

Transportation	Transport with ice packs.
Storage	Store at 2-8°C. Shelf life: 180 days.

Instructions for Use

1. Sample Processing

Naturally air-dry fresh soil samples, or air-dry them in an oven at 37°C. Pass the dried samples through a 30-50 mesh sieve.

2. Reagent Preparation

1. Before use, add 6 mL distilled water to Reagent II and dissolve thoroughly. Store unused reagent at 4°C.
2. Before use, add 2 mL Reagent VII to Reagent III and heat in a boiling water bath to dissolve. Then add 8 mL Reagent I, mix thoroughly, and set aside for use. Store unused reagent at 4°C.
3. Before use, add 30 mL distilled water to Reagent IV and dissolve thoroughly for later use. Store unused reagent at 4°C.

3. Assay Procedure

1. Preheat the spectrophotometer or microplate reader for at least 30 min. Set the wavelength to 680 nm and zero with distilled water.
2. Add samples and reagents according to the table below.

Component	Assay Tube	Control Tube
Air-dried soil sample	0.02 g	0.02 g
Reagent I	150 μL	
Reagent III	150 μL	

Mix well and incubate in a 40°C water bath for 30 min. Shake 5-6 times during incubation to allow the soil sample to fully contact the reaction solution.

Component	Assay Tube	Control Tube
Reagent II	50 μL	50 μL

Mix well, then centrifuge at 8000 g and 25°C for 10 min. Take the supernatant and add the following reagents to EP tubes.

Component	Assay Tube	Control Tube	Standard Tube
Supernatant	60 μL	60 μL	
Reagent VI	60 μL		
Reagent IV	280 μL	280 μL	280 μL
Reagent V	60 μL	60 μL	60 μL

Mix well and incubate in a 40°C water bath for 20 min. Centrifuge at 8000 g and 25°C for 10 min. Collect 200 μL supernatant and read the absorbance value of each tube at 680 nm, recorded as A.

> The standard tube only needs to be measured once. Set one control tube for each assay tube.

S-NPT Activity Calculation

Unit definition: The production of 1 mg tyrosine per g soil sample per day is defined as one S-NPT activity unit.

S-NPT (mg/d/g soil sample) = $C_{standard} \times (A_{assay} - A_{control}) \div A_{standard} \times V_{total\ reaction} \div W \div T = 24 \times (A_{assay} - A_{control}) \div A_{standard}$

Parameter	Value
$C_{standard}$	Standard tube concentration, 0.05 mg/mL
$V_{total\ reaction}$	Total reaction system volume, 0.4 mL
T	Reaction time, 30 min = 1/48 d
W	Sample mass, 0.02 g

Precautions

- This 100T product can test 48 samples.

Visual Reference