

Phenylalanine Deaminase Test Reagent

P1506556

Storage: Room Temperature.

Introduction:

Biochemical tests (also called biochemical reactions) of bacteria refer to the process of determining metabolic products through biochemical methods. Different bacteria have their own enzyme systems, leading to differences in their ability to decompose substrates and thus the metabolic products produced. Biochemical tests mainly include biochemical tests for carbohydrates, metabolism tests for amino acids and proteins, utilization tests for carbon sources and nitrogen sources, and metabolism tests for enzymes. Different bacteria vary in their ability to decompose proteins. Generally, extracellular enzymes first break down proteins into short peptides or amino acids; after these substances enter bacterial cells, intracellular enzymes further decompose peptides into amino acids.

The phenylalanine deaminase test reagent, also known as ferric chloride reagent, mainly consists of ferric chloride and deionized water. The basic principle of the phenylalanine deaminase test is that some bacteria can produce phenylalanine deaminase, which removes the amino group from phenylalanine to form phenylpyruvic acid. Phenylpyruvic acid can react with ferric chloride to form a green compound. This test is often used to identify intestinal bacteria—for example, to distinguish between *Escherichia coli* and *Proteus*. *Proteus* produces phenylalanine deaminase, while *Escherichia coli* does not, so this property can be used for differentiation.

Self-Prepared Materials:

1. Phenylalanine agar slant medium.
2. Inoculating loop, alcohol lamp, constant-temperature incubator.

Operating Procedures (For Reference Only):

1. Inoculate the test bacteria onto the phenylalanine agar slant medium, and incubate in a constant-temperature incubator at 35°C for 18–24 hours.
2. Open the agar slant medium, add 3–4 drops of ferric chloride reagent, and let the reagent flow down from the top of the slant.
3. Immediately observe and record the color development result.

Staining Results:

<i>Proteus vulgaris</i> CMCC 49001/ATCC 13315	Positive, Green
<i>Escherichia coli</i> ATCC 25922	Negative, Yellow

Precautions:

1. When culturing bacteria, take care to avoid contamination.
2. The amount of inoculated bacteria should be sufficient; otherwise, false-negative reactions are likely to occur.
3. After adding ferric chloride reagent, observe the results immediately. Prolonging the reaction time will cause discoloration—whether the result is positive or negative, a judgment must be made within 5 minutes.
4. For your safety and health, please wear a lab coat and disposable gloves during operation.
5. After opening the reagent, use it as soon as possible to prevent any impact on the results of subsequent experiments.

A large, light blue, diagonal watermark of the Aladdin logo is centered on the page. It features the word "aladdin" in a serif font, with a registered trademark symbol and a stylized "a" with yellow and orange circular elements.