

Phenylalanine Agar (i23403)

Also known as Phenylalanine Deaminase Medium, is used for the differentiation of enteric Gram-negative *bacilli* on the basis of their ability to produce phenylpyruvic acid from phenylalanine by oxidative deamination.

Industry: Food

Principles & Uses

Phenylalanine Agar, a modification by Ewing et al., is crucial for distinguishing *Proteus*, *Morganella*, and *Providencia* species within *Enterobacteriaceae* due to their ability to deaminate phenylalanine. The test relies on the enzymatic conversion of DL-Phenylalanine to phenylpyruvic acid. The presence of yeast extract ensures the necessary nutrients for robust organism growth. Sodium chloride contributes to osmotic equilibrium, and Disodium Phosphate acts as a buffering agent. Agar serves as the solidifying agent in the medium.

A positive reaction, where a green color appears after ferric chloride addition, indicates deamination of DL-Phenylalanine. The interpretation must be swift as the green color fades quickly.

Composition (gr/L)

DL-Phenylalanine 2 g, Yeast Extract. 3 g, Sodium Chloride 5 g, Disodium Phosphate 1, Agar 12 g.

Final pH at 25°C 7.3 ± 0.2

Preparation from dehydrated Powder

Suspend 23 g of the powder in 1 L of purified water. Mix thoroughly. Autoclave at 121°C for 15 minutes. Dispense in tubes for slant cultures. After appropriate incubation of bacteria, ferric chloride reagent is added on the agar. Formation of a green color in 1 - 5 min indicates the production of phenylpyruvic acid.

Quality Control

Dehydrated Appearance: Light tan, free-flowing, homogeneous.

Prepared Appearance: light amber, slightly opalescent.

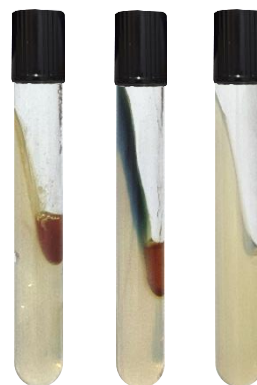
Reaction of 2.3% Solution at 25°C: pH 7.3 ± 0.2

Cultural Response

Inoculate slant tubes and incubate at 35 ± 2°C for 18 - 24 hours. After appropriate growth, add 3 - 5 drops of a 10% aqueous solution of ferric chloride and gently rotate to loosen the growth. Read reactions after 1 - 5 minutes.

Organism (ATCC*)	Recovery	Color reaction
<i>Enterobacter aerogenes</i> (13048)	Good	-
<i>Proteus vulgaris</i> (13315)	Good	+ (Green)
<i>Providencia alcalifaciens</i> (9886)	Good	+ (Green)

*ATCC is a registered trade mark of the American Type Culture Collection.



Enterobacter aerogenes (left). *Proteus vulgaris* (middle). Prepared culture Media (right).

Storage

Keep the container at 15-30 °C. Store prepared medium at 2-8 °C.