Lysine Decarboxylase Broth ISO

Cat. 1208

For the identification of microorganisms, especially enteric bacilli, based on the decarboxylation of lysine

Practical information

Aplications	Categories
Differentiation	Enterobacteria

Industry: Water / Food

Regulations: ISO 10273

Principles and uses

Lysine Decarboxylase Broth is used to detect and differentiate Enterobacteria from other microorganisms, based on lysine decarboxylation.

Gelatin peptone provides nitrogen, vitamins, minerals and amino acids essential for growth.Yeast extract is a source of vitamins, particularly of the B-group. Dextrose is the fermentable carbohydrate. Bromocresol purple is the pH indicator. Lysine is added to detect the production of the specific enzyme.

When the medium is inoculated with a bacterium that is able to ferment dextrose, the acid produced lowers the pH of the medium and changes the color of the indicator from purple to yellow. The acidic condition also stimulates decarboxylase activity. The bacteria that decarboxylate the L-Lysine to cadaverine are identified by the presence of a purple-red color. The production of these amines elevates the pH of the medium. A yellow color after 24 hours indicates a negative result.

By substituting L-Lysine with Arginine or Ornithine, the new resulting medium (Falkow Broth Base) can be used to study the decarboxylation of these amino acids.

Formula in g/L

Bromocresol purple	0,02	Dextrose	1
Gelatin peptone	5	L-Lysine	5
Yeast extract	3		

Preparation

Suspend 14 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Dispense quantities of 5 ml into screw-capped tubes. Sterilize in autoclave at 121 ºC for 15 minutes. Leave caps loose to allow gas exchange. Close well after sterilization.

Instructions for use

- Gently insert the inoculation loop with the sample into the tube and move the loop back and forth several times to inoculate the media.
- Incubate at 35±2 °C for 24 hours
- Color change to purple: positive decarboxylation reaction (Escherichia, Klebsiella, Salmonella, except S.parathyphi, Arizona, Alkalescens Dispar, Serratia).
- Yellow color: negative decarboxylation reaction (Proteus, Providencia, S.parathypi A,Shigella, Aeromonas, Citrobacter).

Quality control

Solubility	Appareance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25ºC)
w/o rests	Fine powder	Light beige	Violet	6,8 ± 0,2

Microbiological test

Incubation conditions: (35±2 ºC) and (18-48 h).

Microrganisms	Characteristic reaction
Serratia liquifaciens ATCC 12926	Lysine Decarboxylation (+) slow
Proteus vulgaris ATCC 13315	Lysine Decarboxylation (-)
Escherichia coli ATCC 25922	Lysine Decarboxylation (+)
Salmonella typhi ATCC 6539	Lysine Decarboxylation (+)
Salmonella paratyphi ATCC 9150	Lysine Decarboxylation (-)

Storage

Temp. Min.:2 ºC
Temp. Max.:25 ºC

Bibliography

Falkow A. S. Clin. Path. 28:598, 1958.
Ewing Davis and Deaves, Studies in the Serratia Group. U.S. Dept. H.E.W.C.D.C. Atlanta, 1972. Edwards and Ewing. Identification of Enterobacteriaceae, Burgess Publ. Co. Minneapolis, Minn., 1961.