Lysine Decarboxylase Medium ISO

Cat. 1176

For the biochemical confirmation of Salmonella and Yersinia enterocolitica.

Practical information

Aplications	Categories
Confirmation	Salmonella
Confirmation	Yersinia enterocolitica

Industry: Water / Food

Regulations: ISO 10273 / ISO 19250 / ISO 6579

Principles and uses

Lysine Decarboxylase Medium is recommended by ISO 6579 and ISO 19250 for the biochemical confirmation of Salmonella based on lysine decarboxylation. It is also recommended by ISO 10273 for the biochemical confirmation of Yersinia.

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. A yellow color after 24 hours indicates a negative result, such as Yersinia.

Yeast extract extract is the source of vitamins, of particularly the B-group, essential for growth. Dextrose is the fermentable carbohydrate. Bromocresol purple is the pH indicator. Lysine is added to detect the production of the specific enzyme.

Formula in g/L

Dextrose	1	Bromocresol purple	0,015
Yeast extract	3	Lysine Monohydrate	5

Preparation

Suspend 9 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.

Instructions for use

According to ISO 6579 for the confirmation of Salmonella spp. in food, animal feed, animal feces and environmental samples:
- Obtain presumptive colonies after inoculating the sample in selective isolation media such as XLD Agar (Cat. 1274) or other complementary ones (Chromogenic Salmonella Agar (Cat. 1122), Bright Green Agar (Cat. 1143), Bismuth Sulfite Agar (Cat. 1011), DCLS Agar (Cat. 1045), Deoxycholate Citrate Agar (Cat. 1067), Enteric Hektoen Agar (Cat. 1030), Salmonella Shigella Agar (Cat. 1064) and XLT4 Agar (Cat. 1159)).
- To confirm Salmonella spp. Inoculate the presuntive colonies at least in the Iron and Triple Sugar Agar (Cat. 1172), Urea Agar (Cat. 2180) and the Lysine Decarboxylation Medium (Cat. 1176).
- Inoculate the Lysine Decarboxylse Medium just below the surface of the liquid medium.
- Incubate at 37 ºC for 24±3 h.
- The turbidity and a color purple of the medium after incubation indicate a positive reaction. A yellow color indicates a negative reaction.

According to ISO 19250 for the confirmation of Salmonella spp. in water samples:
- Obtain presumptive colonies after inoculating the sample in selective isolation media such as XLD Agar (Cat. 1274) or other complementary ones (Brilliant Green Agar (Cat. 1143) or Bismuth Sulfite Agar (Cat. 1011).
- To confirm Salmonella spp. Inoculate the presuntive colonies at least in the Iron and Triple Sugar Agar (Cat. 1172), Urea Agar (Cat. 2180) and the Lysine Decarboxylation Medium (Cat. 1176).
- Inoculate the Lysine Decarboxylse Medium well below the surface of the liquid medium and incubate at 36±2 ºC for 24±3 h.
- Typical Salmonella cultures show a purple colour after incubation.

According to ISO 10273 for the confirmation of Yersinia enterocolitica:
- Obtain presumptive colonies after inoculating the sample in a selective isolation media such as the Selective Agar Base for Yersinia CIN (Cat. 1126).

- Inoculate the colonies in the Lysine Decarboxylation Medium (Cat. 1176) just below its surface.
- Incubate at a temperature of 30 °C for 24±2 hours.
- The appearance of a violet color after incubation indicates that the reaction is positive. If the color is yellow the reaction will be negative.

Quality control

Solubility	Appearance	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: (37±1 ºC / 24±3 h).

Microorganisms	Specification
Escherichia coli ATCC 11775	(-) El color del medio cambia de púrpura a amarillo
Enterobacter aerogenes ATCC 13048	(+) Medium remains purple after incubation and is turbid
Salmonella enteritidis ATCC 13076	(+) Medium remains purple after incubation and is turbid
Salmonella typhimurium ATCC 14028	(+) Medium remains purple after incubation and is turbid
Escherichia coli ATCC 25922	(-) Medium changes from purple to yellow
Cronobacter sakazakii ATCC 29544	(-) Medium changes from purple to yellow
Proteus mirabilis ATCC 29906	(-) Medium changes from purple to yellow
Citrobacter freundii ATCC 43864	(-) Medium changes from purple to yellow
Cronobacter muytjensii ATCC 51329	(-) Medium changes from purple to yellow
Escherichia coli CECT 8296	(-) El color del medio cambia de púrpura a amarillo
Escherichia coli ATCC 8739	(-) Medium changes from purple to yellow
Vibrio parahaemolyticus CECT 9114	(+) Medium remains purple after incubation and is turbid

Storage

Temp. Min.:2 ºC
Temp. Max.:25 ºC

Bibliography

ISO 6579 Microbiology of food and animal feeding stuffs – Horizontal method for the detection of Salmonella spp.
ISO 10273: Microbiology of food and animal feeding stuffs – Horizontal method for the detection of presuntive pathogenic Yersinia enterocolitica.
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.
ISO 19250 water quality-detection of Salmonella spp.