

Lactose Broth

For the cultivation of coliforms and Salmonella in water, foods, dairy products and other materials

Practical information

Applications	Categories
Confirmation	Coliforms
Enrichment	Salmonella

Industry: Water / Food

Principles and uses

Lactose Broth is included in many Standard Methods for testing foods, dairy products and other materials for Enterobacteria and other Gram-negative microorganisms. It is also widely used for testing for coliforms in water and foods.

It is used as preenrichment for testing foods and dairy products for Salmonella, where conservation processes may have injured or reduced their numbers. Preenrichment in a non-selective medium allows for repair of cell damage, diluting toxic or inhibitory substances, and provides a nutritional base for Salmonella. A preenrichment medium provides a higher ratio of Salmonella to non-Salmonella organisms after incubation. Most non-Salmonella bacteria ferment lactose whilst Salmonella does not. As lactose is metabolized, the pH decreases creating a bacteriostatic effect on competing organisms.

Large water samples may require a double-strength of Lactose Broth to maintain correct concentration of the medium.

Gelatin and Beef extract provide nitrogen, vitamins, minerals and amino acids essential for growth. Lactose is a complex carbohydrate energy source.

Formula in g/L

Beef extract	3	Gelatin pancreatic digest	5
Lactose monohydrate	5		

Preparation

Suspend 13 grams of the medium in one litre. of distilled water. Mix well and dissolve by heating with frequent agitation. Dispense into tubes with Durham gas collecting tubes for gas detection. Sterilize in autoclave at 121°C for 15 minutes. Cool as quickly as possible.

Instructions for use

- Check the sterilization of the medium by incubating the tubes at 35°C for 24 hours prior to inoculation.
- Ensure that the fermentation tubes are free from air bubbles before inoculation.
- Seed aliquots of 1, 10 or 100 ml of the sample liquid in adequate containers according to the quantity of the medium.
- Incubate at 35 ± 2°C for 18-24 hours and check for the presence of gas, which constitutes a presumptive test.
- Subculture to VRBGL (Cat. 1144) for detection and quantification tests.

Quality control

Solubility	Appearance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25°C)
w/o rests	Fine powder	Beige	Amber	6,9±0,2

Microbiological test

Incubation conditions: (35±2 °C / 18-24 h)

Microrganisms	Specification	Characteristic reaction
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Proteus vulgaris ATCC 13315	Good growth	Gas production (-)
Klebsiella pneumoniae ATCC 13883	Good growth	Gas production (+)
Salmonella typhimurium ATCC 14028	Good growth	Gas production (-)
Escherichia coli ATCC 25922	Good growth	Gas production (+)

Storage

Temp. Min.: 2 °C
Temp. Max.: 25 °C

Bibliography

European Pharmacopoeia, 6th Edition 2007

American Public Health Association. Standard Methods of the Examination of Dairy Products, 12th Edition APHA, New York, 12th, 1967. American Public Health Association. Standard Methods for the Examination of Water and Wastewater Edition APHA, Inc. New York, 1966.