



Medium 4. Fluid Lactose Medium (Lactose Broth)

MM1003

Fluid Lactose Medium is used for the detection of coliform bacteria in water, foods, dairy products in accordance with Indian Pharmacopoeia, 2007.

Composition**

Ingredients	Gms / Litre
Beef extract	3.000
Pancreatic digest of gelatin	5.000
Lactose monohydrate	5.000
pH after sterilization (at 25°C)	6.9±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 12.75 grams (the equivalent weight of dehydrated medium per litre) in 1000 ml purified/distilled water. Heat if necessary to dissolve the medium completely. For larger inocula (10 ml or more), concentrated medium may be prepared to account for medium dilution by the inoculum. Dispense in tubes containing inverted fermentation vial (Durhams tube) as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Principle And Interpretation

Fluid Lactose Medium is recommended by APHA in the performance and confirmation of the presumptive test for coliform bacteria in water (1), food (2), milk (3) and is recommended by IP (4). This medium can be used as an alternate to Lauryl Sulphate Broth in the presumptive test of the MPN of standard coliforms. This medium is also used for pre-enrichment of *Salmonella* for its detection in pharmaceutical raw materials.

Pancreatic digest of gelatin and beef extract supply essential nutrients to the organisms. Lactose monohydrate is a fermentable carbohydrate for the coliforms. Tubes of Lactose Broth are inoculated with dilutions of water or milk, etc. under test, and incubated at 35°C and examined for gas formation after 24 and 48 hours.

Members of the coliform group are defined as aerobic and facultative anaerobic gram-negative and non-sporing bacilli, which ferment lactose with gas formation within 48 hours at 35°C. In testing dairy products, Lactose Broth is used only in the completed test (3). Large water samples may require double strength Lactose Broth to minimize the final volume.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Light amber coloured clear solution

pH

6.70-7.10

Cultural Response

MM1003: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	Gas
<i>Enterobacter aerogenes</i> ATCC 13048	50-100	luxuriant	Positive reaction
<i>Enterococcus faecalis</i> ATCC 29212	50-100	luxuriant	Negative reaction

<i>Pseudomonas aeruginosa</i> ATCC 9027	50-100	luxuriant	Negative reaction
<i>Escherichia coli</i> ATCC 8739	50-100	luxuriant	Positive reaction
<i>Escherichia coli</i> NCTC 9002	50-100	luxuriant	Positive reaction

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2- 8°C. Use before expiry date on the label.

Reference

1. Eaton A. D., Clesceri L. S. and Greenberg A W.,(Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st ed., APHA, Washington, D.C.
2. Downes F P and Ito K(Eds.), 2001, Compendium of Methods For The Microbiological Examination of Foods, 4th ed., APHA, Washington, D.C
3. Wehr H M and Frank J H., 2004, Standard Methods for the Examination of Dairy Products, 17th ed., APHA Inc., Washington, D.C.
4. Indian Pharmacopoeia, 2007 Govt. of India, Ministry of Health and Family Welfare, New Delhi.

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