

Technical Information

Lactose Broth*

Product Code: DM 2003

Application: - Lactose Broth is used for the detection of coliform bacteria in water, foods, and dairy products as per Standard Methods.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	5.000
Beef extract	3.000
Lactose	5.000
Final pH (at 25°C)	6.9±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Examination of water, foods, ingredients and raw materials, for the presence of marker groups such as coliforms is one of the most common tests in a microbiology laboratory, partly because of the relative ease and speed with which these tests can be done. Where it is claimed that drinking water has been processed for safety, the finding of such organism demonstrates a failure of the process. It is a valuable bacterial indicator for determining the extent of fecal contamination of recreational surface waters or drinking water ⁽¹⁾.

Lactose Broth is recommended by APHA for the performance and confirmation of the presumptive test for coliform bacteria in water ⁽²⁾, food ⁽³⁾ and milk ⁽⁴⁾. This medium was initially listed as an alternative to Lauryl Sulfate Broth in the presumptive Standard Total Coliform Multiple-Tube (MPN) Test for water analysis. Lactose Broth provides excellent results in Eijkman Assays of gas production at 45°C, which is a characteristic of *Escherichia coli*. While preparing this medium it is important to avoid overheating and to distribute it into tubes before sterilization.

Peptic digest of animal tissue and beef extract in the medium supply essential nutrients to the organisms. Lactose 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-spore-forming 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.

Methodology

Suspend 13 grams of powder media in 1000 ml distilled water. Shake well & heat if necessary to dissolve the medium completely. For larger inocula (10 ml or more), concentrated medium may be prepared to compensate medium dilution by the inoculum. Dispense in tubes containing inverted fermentation vial (Durham's tube) as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Quality Control

Physical Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Light to medium amber coloured clear solution without any precipitate

Reaction

Reaction of 1.3% w/v aqueous solutions at 25°C. pH: 6.9±0.2

pH Range

6.70-7.10

Cultural Response/Characteristics

DM2003: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.



Dehydrated Culture Media
Bases / Media Supplements

Organism	Inoculum (CFU)	Growth	Gas
<i>Klebsiella aerogenes</i> ATCC 13048	50-100	Luxuriant	Positive reaction
<i>Enterococcus faecalis</i> ATCC29212	50-100	Luxuriant	-ve reaction
<i>Escherichia coli</i> ATCC25922	50-100	Luxuriant	Positive reaction
<i>Pseudomonas aeruginosa</i> ATCC 27853	50-100	Luxuriant	-ve reaction
<i>Pseudomonas aeruginosa</i> ATCC 9027	50-100	Luxuriant	-ve 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

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Corry J. E. L., Curtis G. D. W., and Baird R. M., Culture Media for Food Microbiology, Vol. 34, Progress in Industrial Microbiology, 1995, Elsevier, Amsterdam
2. Eaton A. D., Clesceri L. S., Rice E. W. and Greenberg A W.(Eds.), 2005, Standard Methods for the Examination of Water and Waste water, 21st Ed., APHA, Washington, D.C.
3. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C.
4. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc. , Washington, D.C.

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