Lactose Broth

LQ212C

Intended use

Recommended for the detection of coliform bacteria in water foods, dairy products as per standard methods.

Composition**

Ingredients	Gms / Litre
Peptone	5.000
HM Peptone B#	3.000
Lactose	5.000
Final pH (at 25°C)	6.9±0.2

**Formula adjusted, standardized to suit performance parameters
- Equivalent to Beef extract

Directions

Label the ready to use LQ212C bottle. Inoculate 50-100 cfu sample and Incubate at specified temperature and time.

Principle And 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 accomplished. 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 in 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. Although it is not the original formulation. 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.

Peptone and HM Peptone B in the medium supply nitrogenous and carbonaceous compounds, long chain amino acids and other 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-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.

Type of specimen

Food and dairy samples; Water samples

Specimen Collection and Handling:

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (5,6). For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards (1). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1.Individual organisms differ in their growth requirement and may show variable growth patterns on the medium.
2.Each lot of the medium has been tested for the organisms specified on the COA. It is recommended to users to validate the medium for any specific microorganism other than mentioned in the COA based on the user's unique requirement.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Sterile clear Lactose Broth in glass bottle.

Colour

Light to medium amber coloured clear solution.

Quantity of medium

100 ml of medium in glass bottle

Sterility test

Passes release criteria

pH

6.70-7.10

Cultural Response

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

Organism	Inoculum (CFU)	Growth	Gas
# *Klebsiella aerogenes* ATCC 13048 (00175*)	50-100	luxuriant	positive reaction
Enterococcus faecalis ATCC 29212 (00087*)	50-100	luxuriant	negative reaction
Escherichia coli ATCC 25922 (00013*)	50-100	luxuriant	positive reaction
Pseudomonas aeruginosa ATCC 27853 (00025*)	50-100	luxuriant	negative reaction
$*Pseudomonas paraeruginosa* ATCC 9027 (00026*)	50-100	luxuriant	negative reaction
Escherichia coli ATCC 8739 (00012*)	50-100	luxuriant	positive reaction

Key : * Corresponding WDCM numbers, # Formerly known as *Enterobacter aerogenes*
$ Formerly known as *Pseudomonas aeruginosa*

Storage and Shelf Life

On receipt store between 15-30°C. Use before expiry date on the label. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (3,4).

Reference

1. Lipps WC, Braun-Howland EB, Baxter TE,eds. Standard methods for the Examination of Water and Wastewater, 24th ed. Washington DC:APHA Press; 2023.
2. 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.
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
4. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
5. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
6. 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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