Lactose Broth BIS

Intended Use
Lactose Broth BIS is used for the detection of coliforms in water, food and dairy products in compliance with BIS specification IS: 5401 -1969.

Summary
Examination of water, food 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. Lactose Broth is recommended by APHA in the performance and confirmation of the presumptive test for coliform bacteria in water, food and milk. 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*.

Principle
Peptone and beef extract in the medium supply essential nutrients to the organisms. Lactose is a fermentable carbohydrate for the coliforms. Growth with the production of gas is a presumptive test for coliforms.

Formula*
Ingredients	**g/L**
Lactose	5.0
Peptone	5.0
Beef Extract	3.0
Final pH (at 25°C)	6.9 ± 0.2

*Adjusted to suit performance parameters

Storage and Stability
Store dehydrated medium below 30°C in tightly closed container and the prepared medium at 2°C-8°C. Avoid freezing and overheating. Use before expiry date on the label. Once opened keep powdered medium closed to avoid hydration.

Type of specimen
Food and Dairy samples; Water samples

Specimen Collection and Handling
Ensure that all samples are properly labelled.
Follow appropriate techniques for handling samples as per established guidelines.
Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure.
The samples must be stored and tested within the permissible time duration.
After use, contaminated materials must be sterilized by autoclaving before discarding.

Directions
1. Suspend 13.00 g of the powder in 1000 mL purified / distilled water and mix thoroughly.
2. Heat if necessary, to dissolve the powder completely.
3. Dispense in test tubes containing inverted Durham's tubes, in 10 mL amounts for testing samples of 1 mL or less. For testing larger samples (10 mL), prepare double strength broth (26 g in 1000 mL) and distribute in 10 mL amounts.
4. Sterilize by autoclaving at 121°C (15 psi) for 15 minutes as per validated cycle.

Quality Control

Dehydrated Appearance: Yellow coloured, homogenous, free flowing powder.
Prepared Appearance: Light yellow to medium amber coloured, clear solution without any precipitate.
Growth Promotion Test: Growth promotion is carried out in accordance with BIS and growth was observed after an incubation at 30-35°C for 18-48 hours.
Growth Promoting Properties: The test results observed are within the specified temperature and shortest period of time specified in the test, inoculating ≤ 100 cfu of appropriate microorganism at 30°C-35°C for 18 hours.

Organisms (ATCC)	Growth	Gas	Acid
Klebsiella aerogenes (13048)	Good	+	+
Escherichia coli (25922)	Good	+	+
Escherichia coli (8739)	Good	+	+
Enterococcus faecalis (29212)	Good	-	-
Salmonella enterica subsp. *enterica* serovar *Typhimurium* (14028)	Good	-	-

Key:
For Gas (+) - Positive reaction (Bubble formation in Durham's tube)
For Gas (-) - Negative reaction (No bubble formation in Durham's tube)

Note:
After incubation, add 1-2 drops of 1% phenol red solution to observe acid production.

Interpretation of Results

A positive test for coliforms is the production of turbidity in the medium and gas in the Durham's tubes within 48 hours.

Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

Precautions/Limitations

1. The results should be confirmed with additional standard testing.
2. The Durham's tubes should be free from bubbles before inoculation.
3. Avoid overheating double strength broth as inhibitory products may be formed.
4. When used for pre-enrichment of samples for the recovery of *Salmonella*, the growth from the medium should be sub-cultured to an appropriate medium for the identification of *Salmonella* species.

Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

Reference

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 Wastewater, 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.
5. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201120090100	Dehydrated Culture Media	100 g
201120090500	Dehydrated Culture Media	500 g