



Eijkman Lactose Broth

M086

Intended Use:

Recommended for detection and differentiation of *Escherichia coli* from other coliforms on the basis of their ability to grow and liberate gas from lactose.

Composition**

Ingredients	g / L
Tryptose	15.000
Lactose	3.000
Dipotassium hydrogen phosphate	4.000
Potassium dihydrogen phosphate	1.500
Sodium chloride	5.000
Final pH (at 25°C)	6.8±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 28.5 grams in 1000 ml purified/distilled water. For examination of 10 ml portions of water samples, use 57.0 grams per 1000 ml distilled water. Heat if necessary to dissolve the medium completely. Dispense into tubes with inverted Durham's fermentation tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Principle And Interpretation

Coliform organism is a term used to designate the lactose-fermenting Enterobacteria such as *Escherichia coli* and *Enterobacter*. *Enterobacteriaceae* forms a large group of gram-negative bacteria that inhabit intestinal tract of warm-blooded animals. Therefore they constitute the major microbial flora of human faeces. Since coliforms are readily isolated and identified, they are used as indicator organisms to check faecal contamination of food, water and other samples (1). *E.coli* is one of the common organisms involved in gram-negative sepsis and endotoxin-induced shock (2).

Eijkman (3) described a method for selective isolation of *E.coli* from faeces of warm-blooded and cold-blooded animals. This method had limitations due to the inability to obtain growth after subculturing from positive tubes incubated at 46°C, as acidity and high temperature resulted in death of the culture within 24-48 hours. Perry and Hajna (4) modified Eijkman's original method by decreasing carbohydrate content and adding a phosphate buffer enabling to subculture *E. coli* after incubation at 46°C for 96 hours or longer where pH was 5.6 unlike 4.5 of Eijkman Medium. Perry (5) modified Eijkman Medium using lactose for isolation of *E.coli*. This medium can also be used for bacteriological examination in water filtration control work (6).

Tryptose and lactose in the medium are the energy and the carbon sources respectively. *E. coli* ferment lactose to form acid and gas. The gas produced gets trapped in the form of gas bubbles in the inverted Durhams tubes. Phosphates buffer the medium whereas sodium chloride helps to maintain the osmotic equilibrium of the medium.

Type of specimen

Clinical samples - Urine; Water samples.

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (7,8).

For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards(9).

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic Use. For professional use only. 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 clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations

1. This method had limitations due to the inability to obtain growth after subculturing from positive tubes incubated at 46°C, as acidity and high temperature resulted in death of the culture within 24-48 hours.
2. Further biochemical identification is necessary for confirmation.

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

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Light yellow coloured, clear solution without any precipitate

Reaction

Reaction of 2.85% w/v aqueous solution at 25°C. pH : 6.8±0.2

pH

6.60-7.00

Cultural Response

Cultural characteristics observed after an incubation at 45.5 to 46°C for 24 - 48 hours.

Organism	Growth	Gas
<i>Escherichia coli</i> ATCC 25922 (00013*)	luxuriant	positive reaction
# <i>Klebsiella aerogenes</i> ATCC 13048 (00175*)	poor	negative reaction

Key :(*) Corresponding WDCM numbers

(#) Formerly known as *Enterobacter aerogenes*

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 15-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. 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 clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (7,8).

Reference

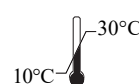
1. Norton C.F., 1940, Microbiology, 2nd Ed., Addison Wesley Publishing Company.
2. Koneman E.W., Allen S.D., Janda W. M., Schreckenberger P. C., Winn W.C. Jr., 1992, Colour Atlas and Textbook of Diagnostic Microbiology, 4th Ed, J. B. Lippincott Company.
3. Eijkman, 1904, Centr. Bakt., 11th Abst., 37:742.
4. Perry C.A., 1939, Food Research, 4:381.
5. Perry C. A. and Hajna A. A., 1933, J. Bacteriol., 26:419.
6. Standard Methods for the Examination of Water and Wastewater, 11th Ed., 1960, APHA, N.Y.
7. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
8. 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.
9. Lipps WC, Braun-Howland EB, Baxter TE, eds. Standard methods for the Examination of Water and Wastewater, 24th ed. Washington DC:APHA Press; 2023.



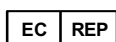
HiMedia Laboratories Pvt. Limited,
Plot No.C-40, Road No.21Y,
MIDC, Wagle Industrial Area,
Thane (W) -400604, MS, India



**In vitro diagnostic
medical device**



Storage temperature



CEpartner4U, Esdoornlaan 13,
3951DB Maarn, NL
www.cepartner4u.eu



CE Marking



**Do not use if
package is damaged**

Disclaimer :

User must ensure suitability of the product(s) in their application prior to use. Products conform solely to the information contained in this and other related HiMedia™ publications. The information contained in this publication is based on our research and development work and is to the best of our knowledge true and accurate. HiMedia™ Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are not intended for human or animal or therapeutic use but for laboratory, diagnostic, research or further manufacturing use only, unless otherwise specified. Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.