Technical Information

Eijkman Lactose Broth

Product Code: DM 1086

Application: Eijkman Lactose Broth is used for the detection and differentiation of Escherichia coli from other coliform organisms on the basis of their ability to grow and liberate gas from lactose.

Composition**

Ingredients	Gms / Litre
Tryptose	15.000
Lactose	3.000
Dipotassium phosphate	4.000
Monopotassium phosphate	1.500
Sodium chloride	5.000
Final pH (at 25°C)	6.8±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Enterobacteriaceae forms a large group of gram-negative bacteria that inhabit intestinal tract of warm-blooded animals. 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 isolation of E. coli from faeces of warm-blooded and cold-blooded animals. This method is based on the principal of inability to grow a bacteria after subculturing from positive tubes when incubated at 46°C, as acidity and high temperature resulted in death of the culture within 24-48 hours. Perry and Hajna [4] modified Eijkmans 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.

Methodology

Suspend 28.5 grams of powder media in 1000 ml distilled water. For examination of 10 ml portions of water samples, use 57 grams of the media per 1000 ml distilled water. Shake well & heat if necessary to dissolve the medium completely. Dispense into tubes with inverted Durhams fermentation tubes. 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 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 Range:- 6.60-7.00

Cultural Response/Characteristics

DM 1086: Cultural characteristics observed after an incubation at 45.5 to 46°C for 24 - 48 hours.

Organism	Inoculum (CFU)	Growth	Gas
Escherichia coli ATCC 25922	50-100	luxuriant	Positive reaction
Enterobacter aerogenes ATCC 13048	50-100	Poor	Negative 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: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

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, 4:38 1.
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.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
- The product conforms solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at **CDH** is true and accurate.
- **Central Drug House 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 diagnostic or therapeutic use but for laboratory, research or further manufacturing of diagnostic reagents extra.
- 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.
- Do not use the products if it fails to meet specificatons for identity and performens parameters.