

PRODUCT SPECIFICATION SHEET

Eijkman Lactose Broth (DM096)

Intended Use

Eijkman Lactose Broth (DM096) is recommended for detection and differentiation of *Escherichia coli* from other coliforms based on their ability to ferment lactose and liberate gas.

Product Summary and Explanation

Coliform organisms are a group of gram-negative bacteria found in the intestinal tract of humans and other warm blooded animals. They constitute the major microbial flora of human faeces. Coliform organism is a term used to designate the lactose-fermenting Enterobacteria such as *Escherichia coli* and *Enterobacter*. Since coliforms are readily isolated and identified, they are used as indicator organisms to check faecal contamination of food, water and other samples.⁽¹⁾ One of the common organisms involved in gram-negative sepsis and endotoxin-induced shock is *Escherichia coli*.⁽²⁾ For selective isolation of *E. coli* from faeces of warm-blooded and cold-blooded animals Eijkman⁽³⁾ described a method. 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. Eijkman's original method was then modified by Perry and Hajna⁽⁴⁾ 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. Using lactose for isolation of *E. coli* Perry⁽⁵⁾ modified Eijkman Medium which can also be employed for bacteriological examination in water filtration control work.⁽⁶⁾

Principles of the Procedure

Eijkman Lactose Broth contains tryptose and lactose are sources of energy and carbon respectively. Lactose is fermented by *E. coli* to form acid and gas. The gas produced gets trapped in the form of gas bubbles in the inverted Durhams tubes. Phosphates act as a buffering agent. Sodium chloride maintains the osmotic equilibrium of the medium.

Formula / Liter

Ingredients	Gms / Liter
Tryptose	15.00
Lactose	3.00
Dipotassium phosphate	4.00
Monopotassium phosphate	1.50
Sodium chloride	5.00
Final pH: 6.8 ± 0.2 at 25°C	
Formula may be adjusted and/or supplemented as required to meet performance specifications	

Precautions

1. For Laboratory Use only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions

1. Suspend 28.5 grams of the medium in one liter of distilled water.
2. For examination of 10 ml portions of water samples, use 57 grams per 1000 ml distilled water.
3. Heat if necessary to dissolve the medium completely.
4. Dispense into tubes with inverted Durhams fermentation tubes.
5. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.

Quality Control Specifications

Dehydrated Appearance	Cream to yellow homogeneous free flowing powder
Prepared Medium	Light yellow coloured, clear solution without any precipitate

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Reaction of 2.85% Solution	pH : 6.8 ± 0.2 at 25°C
Gel Strength	Not Applicable

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

Sr. No.	Organisms	Results to be achieved		
		Inoculum (CFU)	Growth	Gas
1.	<i>Escherichia coli</i> ATCC 25922	50 - 100	good-luxuriant	positive reaction
2.	<i>Enterobacter aerogenes</i> ATCC 13048	50 - 100	poor	negative reaction

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure

Refer to appropriate references for standard test procedures.

Results

Refer to appropriate references for interpretation of results.

Storage

Store the sealed bottle containing the dehydrated medium at 10 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

Expiration

Refer to the expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitations of the Procedure

- For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
- Consult appropriate texts for detailed information and recommended procedures.

Packaging

Product Name : Eijkman Lactose Broth

Product Code : DM096

Available Pack sizes : 500gm

References

- Norton C. F., 1940, Microbiology, 2nd Ed., Addison Wesley Publishing Company.
- 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.
- Eijkman, 1904, Centr. Bakt., 11th Abst., 37:742.
- Perry C. A., 1939, Food Research, 4:381.
- Perry C. A. and Hajna A. A., 1933, J. Bacteriol., 26:419.
- Standard Methods for the Examination of Water and Wastewater, 11th Ed., 1960, APHA, N.Y.

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Further Information

For further information please contact your local MICROMASTER Representative.



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DM096PSS,QAD/FR/024,Rev.00

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