



E C Broth with MUG

RDM-ECB-02

Principle

EC broth is used for detection of coliforms during bacteriological examination of water, milk and food samples. Its modification of Media was described by Hajna and Perry (1943). Media composed of tryptone, lactose, bile salt, dipotassium phosphate, potassium dihydrogen phosphate and sodium chloride and fluorogenic agent (4-Methylumbelliferyl β -D-Glucuronide (MUG). Tryptone provide nitrogen and amino acids and trace nutrients required for the growth of bacteria. Lactose is fermentable carbohydrate, allow only lactose fermenting bacteria to grow. Bile salts inhibit gram-positive bacteria including fecal streptococci. Dipotassium phosphate and potassium dihydrogen phosphate are buffering agent resist change in pH of medium. Gas production in a fermentation tube within 24 hour or less is presumptive evidence of the presence of coliform bacteria. MUG is hydrolyzed by the enzyme β -glucuronidase possessed by *E. coli* to yield a fluorescent end product 4-Methylumbelliferone.

Use: Recommended for detection of *Escherichia coli* in water and food samples by a fluorogenic method.

Contents*

Ingredients	Gram/Litre
Tryptone	20.000
Lactose	5.000
Bile Salts	1.500
Dipotassium Phosphate	4.000
Potassium Dihydrogen Phosphate	1.500
Sodium Chloride	5.000
4-Methylumbelliferyl β -D-Glucuronide (MUG)	0.050
pH at 25°C	6.9 $\pm$ 0.2

* Formula adjusted for optimum performance and parameters

Directions: Dissolve 37.05 grams in 1000 ml distilled water. Boil to dissolve the medium completely and distribute in test tube containing inverted Durham's tube. Sterilize by autoclaving at 15 lbs pressure (121 °C) for 12 min, cool it to 42-45 °C and inoculate test sample aseptically.

Specimens types analyzed

Water and food samples, clinical and non-clinical samples etc.

Precautions to be taken

All the handling, experiments, storage, and discarding should be performed with the help of skilled and knowledgeable technicians and as per the established guidelines. The material should be disposed only after proper sterilization by autoclaving. Please go through the MSDS of the media to avoid any accidents or in emergency.

Performance and Evaluation

The expected performance of the medium is liable to use as per the direction on the label when stored at optimum conditions and within expiry date.

Quality Control

Appearance	Beige colored free flowing, homogeneous powder
Reaction of 3.7% solution	6.9 ±0.2 at 25 °C
pH	6.70- 7.10
Color and clarity of ready medium	Light amber colored opalescent solution
Growth Promotion properties	Best at ≤ 100 CFU at 32-37 °C for 18-72 h
Indicative properties	Optimum at ≤ 100 CFU at 32-37 °C for 18-48 h
Negative control	Performed using sterile distilled water

Different Microbial Response: Cultural characteristics observed after incubation at 33-37°C for 18-24 hours.

Organism	ATCC	Inoculum (CFU)	Growth	Gas production	Fluorescence under UV at 366 nm
<i>Escherichia coli</i>	8739	50-100	Luxuriant	Positive	Positive
<i>Escherichia coli</i>	25922	50-100	Luxuriant	Positive	Positive
<i>Klebsiella aerogenes</i>	13048	50-100	Luxuriant	Negative	Negative
<i>Salmonella typhimurium</i>	14028	50-100	Good	Negative	Negative
<i>Shigella flexneri</i>	9199	50-100	Good	Negative	Negative
<i>Staphylococcus aureus</i>	25923	50-100	Inhibited	--	--

Storage and Shelf Life: The product is highly hygroscopic; keep the container tightly closed at all times and store it properly as per the conditions mentioned on the label. The declared expiry is valid only when stored as per the conditions mentioned on the label.

Note: Sterilize media immediately after reconstitution.

Disposal: To avoid the contamination or propagation of any hazardous microbes the used, unusable or modified preparation of this product must be disposed after autoclaving after completion of task.

Reference

1. Atlas, R. M. (2005). Handbook of media for environmental microbiology. CRC press.
2. Hajna A. A. and Perry C. A., (1943), American Journal of Public Health, 33:550.
3. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), (2015), Standard Methods for the Examination of Water and Wastewater, 23rd Ed., APHA, Washington, D.C.

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