

CM 21,250 - MUG EC BROTH

INTENDED USE

For detection of *Escherichia coli* in water and food by fluorogenic method.

PRODUCT SUMMARY AND EXPLANATION

Escherichia coli is a member of faecal coliform group of bacteria. It is a member of the indigenous faecal flora of warm-blooded animals. *E. coli* is considered a specific indicator of faecal contamination and the possible presence of enteric pathogens. EC Broth was devised by Hajna and Perry and further modified by addition of the fluorogenic compound MUG. MUG EC Broth is also recommended by APHA for the analysis of drinking water, surface and ground water and waste-water for the presence of *E. coli*. MUG permits rapid detection of *E. coli* when medium is observed for fluorescence using UV Light. MUG also detects anaerogenic strains which may not be detected in conventional procedure. MUG is hydrolyzed by the enzyme β -glucuronidase possessed by *E. coli* to yield a fluorescent end product 4-Methylumbelliferone. Large number of *Proteus vulgaris* if present, may suppress gas production of *E. coli*, however fluorescence permits detection of *E. coli* in pure or mixed cultures within 4 to 24 hours.

COMPOSITION

Ingredients	Gms / Ltr
Tryptone	20.000
Lactose	5.000
Bile salts mixture	1.500
Dipotassium hydrogen phosphate	4.000
Potassium dihydrogen phosphate	1.500
Sodium chloride	5.000
4-Methylumbelliferyl β -D-Glucuronide (MUG)	0.050

PRINCIPLE

Tryptone provides essential nutrients. Lactose is the fermentable carbohydrate. Sodium chloride maintains osmotic equilibrium. The medium has a strong buffering system to control the pH in the presence of fermentative action. The bile salts inhibit gram-positive bacteria especially *Bacillus* species and faecal *Streptococci*. Mostly beta-glucuronidase activity occurs within 4 hours but some weak beta-glucuronidase-positive strains require overnight incubation. The fermentation of lactose by lactose fermentors leads to acidification of the medium, resulting in drop of pH. Adjustment of pH of cultures by sodium hydroxide enhanced fluorescence as observed by Maddocks and Greenman. Similarly, Freir and Hartman noticed that exposure of tubes to ammonia fumes enhanced fluorescence.

INSTRUCTION FOR USE

- Dissolve 37.05 grams in 1000 ml purified/distilled water.
- Heat, if necessary to dissolve the medium completely.
- Dispense in tubes containing inverted Durham's tubes.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 12-15 minutes.

QUALITY CONTROL SPECIFICATIONS

- Appearance of Powder : Cream to yellow homogeneous free flowing powder.
- Appearance of prepared medium : Yellow coloured clear solution without any precipitate.
- pH (at 25°C) : 6.9±0.2



INTERPRETATION

Cultural characteristics observed after an incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Fluorescence (under UV) (at 366 nm)	Incubation Temperature	Incubation Period
Escherichia coli	25922	50-100	Luxuriant	Positive, throughout the tube	35-37°C	4-24 Hours
Klebsiella aerogenes	13048	50-100	Luxuriant	Negative	35-37°C	4-24 Hours
Salmonella Typhi	6539	50-100	Good	Negative	35-37°C	4-24 Hours
Staphylococcus subsp. aureus	25923	>=104	Inhibited	-	35-37°C	4-24 Hours
Shigella flexneri	12022	50-100	Good	Negative	35-37°C	4-24 Hours

PACKAGING:

In pack size of 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 2-8°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.

Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

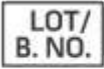
After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

1. 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.
2. Feng P. C. S. and Hartman P. A. S., 1982, Appl. Environ. Microbiol., 43:132.
3. Freir T. A. and Hartman P. A. (1987) Appl. Env. Microbiol. 53. 1246-1250.
4. Hajna A. A. and Perry C. A., 1943, Am. J. Public Health, 33:550.
5. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
6. 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.



7. Maddocks J. L. and Greenan M. J. (1975) J. Clin. Pathol. 28. 686-687.
8. Robinson B. J., 1984, Appl. Environ. Microbiol., 48:285.

 Good Manufacturing Practices Certified	 Best Before	 Quantity	 Catalogue Number	 Manufacturer
 Temperature Unit	 Lot / Batch Number	 Consults Instructions for Use	 QR Code	

NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

*For LabUse Only