Technical Information

MUG EC MiVeg Broth

Product Code :VM2042

Application:- MUG EC MiVeg Broth is recommended for the detection of *Escherichia coli* in water and food samples by a fluorogenic procedure.

Composition

Ingredients	Gms / Litre
MiVeg hydrolysate	20.0
Lactose	5.0
Synthetic detergent No.I	1.5
Dipotassium phosphate	4.0
Monopotassium phosphate	1.5
Sodium chloride	5.0
4-Methylumbelliferyl β-D-Glucuronide (MUG)	0.05
Final pH (at 25°C)	6.9±0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

MUG EC MiVeg Broth is prepared by using vegetable peptones instead of animal peptones thereby making the medium free from BSE/TSE risks. EC Broth was devised by Hajna and Perry (1) and further modified by addition of the fluorogenic compound MUG. This medium is the modification of the formulation by Hajna & Perry which permits rapid detection of *Escherichia coli* when the medium is observed for fluorescence using UV Light (2, 3). MUG also detects anaerogenic strains which may not be detected in conventional procedure (2). *Escherichia coli* possesses an enzyme β-glucuronidase which hydrolyse MUG to yield a fluorescent end product 4-Methylumbelliferone.

MiVeg hydrolysate present in the medium supplies essential nutrients. Lactose serve as the fermentable carbohydrate. Sodium chloride helps to maintains osmotic balance. The medium contains phosphate which provides a strong buffering system to control the pH in the presence of fermentative action. Synthetic detergent No.I inhibits gram-positive bacteria especially *Bacillus* species and faecal *Streptococci*. Generally β-glucuronidase activity occurs within 4 hours but some weakly β-glucuronidase-positive strains require overnight incubation (4).

If *Proteus vulgaris* is present in large number, then it can suppress gas production of *Escherichia coli*, fluorescence permits detection of *Escherichia coli* in pure or mixed cultures.

Methodology

Suspend 37 grams of powder media in 1000 ml distilled water. Mix thoroughly. Heat if necessary to dissolve the medium completely. Dispense in tubes containing inveted Durham's tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 12- 15 minutes.

Quality Control

Physical Appearance

Yellow coloured, may have slightly greenish tinge,homogeneous, free flowing powder.

Colour and Clarity of prepared medium

Yellow coloured, clear solution without any precipitate.

Reaction

Reaction of 3.7 % w/v aqueous solution pH: 6.9 ±0.2 at 25°C

pH range

6.7-7.1

Cultural Response/Characteristics

Cultural characteristics observed after an incubation at 35-37°C for 4-24 hours

Organisms (ATCC)	Inoculum (CFU)	Growth	Fluorescence
Enterobacter aerogenes(13048)	10^2-10^3	luxuriant	-
Escherichia coli (25922)	10^2-10^3	luxuriant	+(throughout the tube)
Salmonella serotype Typhi (6539)	10^2-10^3	good	-
Shigella flexneri (12022)	10^2-10^3	good	-
Staphylococcus aureus (25923)	10^2-10^3	inhibited	-

Key : + = fluorescence at 366 nm

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. Hajna and Perry, 1943, Am. J. Public Health, 33:550.
2. Feng P.C.S. and Hartman P.A.S., 1982, Appl. Environ. Microbiol., 43:132.
3. Robinson, 1984, Appl. Environ. Microbiol., 48:285.
4. Eaton A.D., Clesceri L.S. and Greenberg A.E., (Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st ed, APHA, Washington, D.C.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
- The product conform 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 in fingement of any patents. Do not use the products if it fails to meet specificatons for identity and performens parameters.