

Product Data Sheet

MUG EC BROTH

Product No. GB-DCM-00370-1A

INTENDED USE

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

PRODUCT SUMMARY

Escherichia coli is a member of faecal coliform group of bacteria. It is a member of the indigenous faecal flora of warmblooded 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 wastewater 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.

Product Specifications

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 into tubes or flasks as desired.
- 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

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
Enterobacter 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	$\geq 10^4$	Inhibited	-	35-37°C 4-	24 Hours
Shigella flexneri	12022	50-100	Good	Negative	35-37°C 4-	24 Hours



STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°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.

This product is for research use only.