MUG Bromocresol Purple Broth w/ Lactose

M1486

MUG Bromocresol Purple Broth w/ Lactose is used for identification of *Escherichia coli* and coliform bacteria from water samples by a fluorogenic assay method.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	17.000
Papaic digest of soyabean meal	3.000
Lactose	10.000
Sodium chloride	5.000
Bromocresol purple	0.020
Tryptophan	1.000
4-Methylumbelliferyl ß-D-Glucuronide (MUG)	0.010
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 36.03 grams or if desired, suspend 72.06 grams in 1000 ml distilled water to prepare double strength medium. Heat if necessary to dissolve the medium completely. Dispense into test tubes containing inverted Durhams tubes. Sterilize by autoclaving at 115°C for 20 minutes.

Principle And Interpretation

Escherichia coli is a member of the faecal coliform group of bacteria. Detection of *E. coli* in water indicates faecal contamination. Enzymatic assay have been developed that allow the identification of this organism.

MUG-Bromocresol Purple Broth w/Lactose is used for identification of *E. coli* and coliform bacteria from water samples by a fluorogenic assay method (1).

In MUG-Bromocresol Purple Broth w/ Lactose, casein enzymic hydrolysate and papaic digest of soyabean meal provide carbon, nitrogen and other essential growth factors. Sodium chloride maintains the osmotic balance of the medium. The medium is supplemented with lactose as a carbon source. Bromocresol purple is a pH indicator which has yellow colour at acidic pH and purple colour at alkaline pH. Due to the fermentation of lactose, acid is produced which turns the medium yellow. Gas in the Durhams tubes after incubation indicates the presence of *E. coli* and/ or coliform bacteria. To confirm the detection, cover the culture with 5 mm layer of Kovacs indole reagent (R008). Development of a red ring after 1-2 minutes confirms presence of *Escherichia coli* .

All commensal *E. coli* produce β-glucuronidase which cleave MUG to release 4-methylumbelliferone, a fluorescent compound. The fluorescence can be observed by exposure to long wave UV light (366 nm). The plates are exposed to ammonia fumes to increase fluorescence as suggested by Freir and Hartman (3).

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium
Purple coloured clear solution without any precipitate

Reaction
Reaction of 3.6% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH
6.80-7.20

Cultural Response
Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Cultural Response

Organism	Inoculum (CFU)	Growth	Acid production	Gas	Fluorescence (under uv)	Indole
Cultural Response						
Escherichia coli ATCC 25922	50-100	good-luxuriant	positive reaction, yellow colour	positive reaction	Positive (by adding 0.2N NaOH)	positive reaction, red ring at the interface of the medium
Enterococcus faecalis ATCC 29212	50-100	fair to good	occasional reaction	negative reaction	negative	negative reaction
Klebsiella pneumoniae ATCC 13883	50-100	good-luxuriant	positive reaction, yellow colour	positive reaction	negative	variable reaction
Salmonella Typhimurium ATCC 14028	50-100	good-luxuriant	negative reaction	negative reaction	negative	negative reaction

Storage and Shelf Life

Store below 30°C and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference

1. Kolbeck K. et al, 1992, Zbl. Hyg., 193, 31437.
2. Maddocks J. L. and Greenan M. J. (1975) J. Clin. Pathol. 28. 686-687.
3.Freir T. A. and Hartman P. A. (1987) Appl. Env. Microbiol. 53. 1246-1250.

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