

**MUG EC BROTH****TM 1027**

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

Composition

Ingredients	Gms/Ltr.
Casein enzymatic hydrolysate	20.00
Lactose	5.00
Sodium chloride	5.00
Dipotassium phosphate	4.00
Monopotassium phosphate	1.50
Bile salt mixture	1.50
4-Methylumbelliferyl β -D-Glucuronide (MUG)	0.050

* Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers below 25°C and protect from direct Sunlight.

Instructions for Use

Dissolve 37gms in 1000ml distilled water. Gently heat to boiling with gentle swirling and dissolve the medium completely. Dispense in test tubes containing inverted Durham tubes. Sterilize by autoclaving at 15 psi (121°C) for 15 minutes. Cool the medium as quickly as possible for use.

Appearance: Yellow colour, clear solution

pH (at 25°C): 6.9 \pm 0.2

Principle

MUG EC BROTH is used for the detection of *Escherichia coli* in water and food sample by fluorogenic method. *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. Medium contains Casein enzymatic hydrolysate, provides nitrogen for the growth. Bile salt mixture inhibit gram-positive bacteria especially bacilli and faecal *Streptococci* sp. Sodium chloride maintains the osmotic balance of the medium. Monopotassium phosphate and Dipotassium phosphate are the buffering agents and helps to control the pH during fermentation of lactose. 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. Lactose- positive bacteria metabolize Lactose and produces gas, (as indicated by Durham tubes) within 24 hour or less is a presumptive evidence of the presence of coliform bacteria or indicating fecal coliforms. Inoculate the tubes containing 10 ml of MUG EC Broth and the Durham tubes and incubate at wished temperature for 4 - 24 hours. In case of gas formation the Durham tubes rises up. This medium can be used at 37°C for the detection of coliforms (no gas formation of *E. coli*) or use at 45-50°C for the isolation of *Escherichia coli* and other coliforms (gas formation of *E. coli*).

Interpretation

Cultural characteristics observed after inoculating (10^3 CFU/ml), on incubation at 35 - 37°C for 4 - 24 hours.

Microorganisms	ATCC	Inoculum (CFU/ml)	Growth	Fluorescence (366 nm)
<i>Escherichia coli</i>	25922	10^3	Good	+ve, appears

PRODUCT DATA SHEET

				throughout the tube
<i>Salmonella typhi</i>	6539	10 ³	Good	-ve
<i>Shigella flexneri</i>	12022	10 ³	Good	-ve

References

1. Fishbein and Surkiewicz, Appl. Microbiol., 12:127. (1964).
2. Hajna and Perry, Am. J. Publ. Health, 33:550. (1943).
3. Feng P. C. S. and Hartman P. A. S., Appl. Environ. Microbiol., 43:132. (1982).
4. Robinson B. J., Appl. Environ. Microbiol., 48:285. (1984).