

Technical Information

MUG Brilliant Green Bile Broth

Product Code: DM 2038

Application: - MUG Brilliant Green Bile Broth is recommended detection of *Escherichia coli* in water and food samples by the fluorogenic assay procedure.

Composition**

Ingredients	Gms / Litre
Pancreatic digest of gelatin	10.000
Lactose	10.000
Oxgall	20.000
Brilliant green	0.0133
4-Methylumbelliferyl β -D-Glucuronide (MUG)	0.050
Final pH (at 25°C)	7.2 \pm 0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

MUG Brilliant Green Bile Broth is one of the most widely recommended medium for the detection of coliform bacteria in water, wastewater, foods, and milk and dairy products. This medium is formulated as per APHA (1, 2, 3) for the presumptive identification and confirmation of coliform bacteria (4, 5).

Pancreatic digest of gelatin serves as a source of essential nutrients. Lactose acts as the fermentable carbohydrate. Ox gall inhibits gram-positive bacteria whereas the gram-negative bacteria are inhibited by brilliant green. Production of gas from lactose fermentation is detected by incorporating inverted Durham's tube, which indicates the positive evidence of faecal coliform since non faecal coliforms growing in this medium do not produce gas. Gram-positive spore formers may produce gas if the bile or brilliant green inhibition is weakened by reaction with food material. The fluorogenic compound, MUG (4-Methylumbelliferyl-D-glucuronide) in the medium permits the rapid detection of *E.coli* which produces a blue fluorescence when hydrolyzed by the enzyme-glucuronidase and is observed using a long-wave UV light source.

During examination of water samples, growth from presumptive positive tubes showing gas in Lactose Broth (DM 1026) or Lauryl Tryptose Broth (DM 1080) is inoculated in Brilliant Green Bile Broth 2% (DM 1121). Gas formation within 48 \pm 2 hours confirms the presumptive test (1).

Methodology

Suspend 40.1 grams of dehydrated powder media in 1000 ml distilled water. Mix thoroughly & heat if necessary to ensure completely solution. Dispense 10 ml amounts in test tubes containing inverted Durham's tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Quality Control

Appearance

Light yellow to light green homogeneous free flowing powder

Colour and Clarity

Emerald green coloured clear solution

pH Range

7.00-7.40

Cultural Response

DM 1038: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Gas	Fluorescence (at 366 nm)
Cultural Response <i>Escherichia coli</i> ATCC 25922	50-100	luxuriant	Positive	Positive (by adding 0.2N NaOH)
<i>Enterobacter aerogenes</i> ATCC 13048	50-100	luxuriant	Positive	Negative
<i>Enterococcus faecalis</i> ATCC 29212	50-100	none-poor	Negative	Negative
<i>Staphylococcus aureus</i> ATCC 25923	$\geq 10^3$	inhibited	-	-

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label.

Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Greenberg A. E., Eaton A. D. and Clesceri L. S., (Eds.), 1998, Standard Methods for the Examination of Water and Wastewater, 20th ed., APHA, Washington, D.C.
2. Downes F. P. and Ito K. (Eds.) 2001, Compendium of Methods for the Microbiological Examination of Food. 4th Ed, APHA, Washington, D.C.
3. Richardson G., (Ed.), 1985, Standard Methods for the Examination of Dairy Products, 15th Ed, APHA, Washington, D.C.
4. McCrady and Langerin, 1932, J. Dairy Science, 15:321.
5. McCrady, 1937, Am. J. Publ. Health, 27:1243.

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