

Violet Red Bile with Lactose Agar + MUG

Cat. 1313

For the detection of coliforms and the fluorogenic detection of Escherichia coli.

Practical information

| Applications | Categories |
|--------------|------------------|
| Detection | Coliforms |
| Detection | Escherichia coli |

Industry: Water / Food

Principles and uses

Violet Red Bile with Lactose Agar + MUG is a selective medium used for the detection of coliforms and the fluorogenic detection of Escherichia coli .

Violet Red Bile Agar with MUG is specified in many procedures to enumerate coliforms in food and dairy products. Incorporating MUG into Violet Red Bile Agar permits the detection of E. coli among the coliform colonies.

Peptone provides nitrogen, vitamins, minerals and amino acids essential for growth. Yeast extract is a source of vitamins, particularly of the B-group. Lactose is the fermentable carbohydrate providing carbon and energy. Bile salts and Crystal violet inhibit gram-positive bacteria. Neutral red is a pH indicator. Sodium chloride supplies essential electrolytes for transport and osmotic balance. The enzyme which cleaves MUG is highly specific to E. coli, making the simultaneous detection of total coliforms and E. coli possible. Bacteriological agar is the solidifying agent.

It is convenient to use the pour plate method by placing 1 ml of the desired dilution in a sterile Petri dish, adding 15 ml of the medium, cooled to 45-50 °C, and rotating gently before allowing solidifying. Once solidified, pour a second layer of the medium to a depth of 5 mm. Allow to solidify. Incubate at a temperature of 35±2 °C for 18-24 hours. Check the plates under UV light (366 nm). Light blue fluorescence indicates the presence of E. coli.

Lactose fermenters form red colonies with red-purple halos. Occasionally cocci of the intestinal tract can develop as small, punctiform red colonies.

Formula in g/L

| | | | |
|--|--------|-----------------|------|
| Bacteriological agar | 13 | Bile salts N° 3 | 1,5 |
| Crystal violet | 0,0024 | Lactose | 10 |
| Meat peptone | 7 | Neutral red | 0,03 |
| Sodium chloride | 5 | Yeast extract | 3 |
| MUG (4-methylumbelliferyl-β-D-glucuronide) | 0,1 | | |

Typical formula g/L * Adjusted and/or supplemented as required to meet performance criteria.

Preparation

Suspend 39,6 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Cool to 45 °C and dispense immediately. DO NOT OVERHEAT or autoclave.

Instructions for use

Inoculate and incubate at a temperature of 35±2 °C for 18-24 hours.

Quality control

| Solubility | Appearance | Color of the dehydrated medium | Color of the prepared medium | Final pH (25°C) |
|------------|-------------|--------------------------------|------------------------------|-----------------|
| w/o rests | Fine powder | Beige-reddish | Red-purple | 7,4±0,2 |

Microbiological test

Incubation conditions: (35±2 °C / 18-24 h).

| Microorganisms | Specification | Characteristic reaction |
|-----------------------------------|------------------|---|
| Escherichia coli ATCC 11775 | Good growth | Red colonies, Precipitate (+), Fluorescence (+) |
| Shigella flexneri ATCC 12022 | Good growth | Colorless colonies, Fluorescence (-) |
| Klebsiella aerogenes ATCC 13048 | Good growth | Red colonies, Precipitate (+), Fluorescence (-) |
| Salmonella typhimurium ATCC 14028 | Good growth | Colorless colonies; Fluorescence (-) |
| Staphylococcus aureus ATCC 25923 | Total inhibition | |

Storage

Temp. Min.:2 °C

Temp. Max.:8 °C

Bibliography

D.A. Mossel, (1985) Media for Enterobacteriaceae (Inst. J. Food Microbiol 2:27).

ISO 21528. Microbiology of food and animal feeding stuffs -- Horizontal methods for the detection and enumeration of Enterobacteriaceae.

ISO 7402 Microbiology -- General guidance for the enumeration of Enterobacteriaceae without resuscitation -- MPN technique and colony-count technique.

ISO 8523 Microbiology -- General guidance for the detection of Enterobacteriaceae with pre-enrichment.

European Pharmacopoeia 7.0.