

## VIOLET RED BILE AGAR with MUG

### CAT Nº: 1313

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

### FORMULA IN g/l

Meat Peptone	7.00	Neutral Red	0.03
Lactose	10.00	Crystal Violet	0.002
Sodium Chloride	5.00	Bacteriological Agar	13.00
Yeast Extract	3.00	4-Methylumbelliferyl- $\beta$ -D-glucuronide	0.10
Bile Salts N <sup>o</sup> 3	1.50		

**Final pH 7.4  $\pm$  0.2 at 25°C**

### 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. The prepared medium should be stored at 8-15°C. The color is red-purple.

The dehydrated medium should be homogeneous, free-flowing and beige-reddish in color. If there are any physical changes, discard the medium.

### USES

VIOLET RED BILE AGAR WITH MUG is a selective medium is 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 temperatures of 35  $\pm$  2°C for 18 – 24 hours. Check the tubes 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.

### MICROBIOLOGICAL TEST

The following results were obtained in the performance of the medium from type cultures after incubation at a temperature of 35°C and observed after 18-24 hours.

Microorganisms	Growth	Colony Color	Precipitate	Fluorescence
<i>Escherichia coli</i> ATCC 11775	Good	Red	+	+
<i>Enterobacter aerogenes</i> ATCC 13048	Good	Red	+	-
<i>Salmonella gallinarum</i> NCTC 9240	Good	Colourless		-
<i>Shigella flexneri</i> ATCC 29903	Good	Colourless		-
<i>Staphylococcus aureus</i> ATCC 25923	Null			

## 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

## STORAGE

Once opened keep powdered medium closed to avoid hydration.

