

MacConkey Broth Purple w/BCP, Granulated

GM083

Intended use

Recommended for presumptive identification of coliforms from variety of specimens such as water, milk and food etc.

Composition**

Ingredients	g/ L
Peptone	20.000
Lactose	10.000
Sodium taurocholate	5.000
Sodium chloride	5.000
Bromocresol purple	0.010
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 40.01 grams in 1000 ml purified/distilled water. Heat if necessary to dissolve the medium and distribute into test tubes with inverted Durham tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Principle And Interpretation

MacConkey Broth Purple w/ BCP is a modification of MacConkey Medium (1). Childs and Allen (2) demonstrated the inhibitory effect of neutral red and therefore substituted it by the less inhibitory bromocresol purple dye. BCP is more sensitive in recording pH variation in the medium. Peptone provides nitrogenous and carbonaceous compounds, long chain amino acids and other essential growth nutrients. Lactose is the fermentable carbohydrate. Sodium taurocholate inhibits gram-positive organisms. Sodium chloride maintains the osmotic balance of the medium. Bromocresol purple is the pH indicator in the medium which turns yellow under acidic condition. Lactose fermentation turns the medium yellow due to the acidity produced on lactose fermentation. The colour change of the dye is observed when the pH of the medium falls below 6.8. Lactose non-fermenting organisms like *Salmonella* and *Shigella* do not alter the appearance of the medium.

Liquid specimens are directly inoculated while solids have to be homogenized in appropriate diluents such as physiological saline, phosphate buffers, etc. The inoculation must be effected at 10% v/v in Durham's tubes. If the inoculum is greater than 1 ml, it is necessary to use the medium at double strength, inoculating equal volumes of specimen and medium.

Type of specimen

Food and dairy samples ; Water samples.

Specimen Collection and Handling:

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (3,4,5). For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(6) After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

- 1.This medium is general purpose medium and may not support the growth of fastidious organisms.
- 2.Further biochemical and serological tests must be performed for confirmation.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Cream to yellow granular media.

Colour and Clarity of prepared medium

Purple coloured clear to slightly opalescent solution in tubes

Reaction

Reaction of 4.0% w/v aqueous solution at 25°C.pH:-7.4±0.2

pH

7.20-7.60

Cultural Response

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

Organism	Inoculum (CFU)	Growth	Acid production	Gas production
# <i>Klebsiella aerogenes</i> ATCC 13048 (00175*)	50-100	luxuriant	positive reaction, yellow colour	positive reaction
<i>Escherichia coli</i> ATCC 25922 (00013*)	50-100	luxuriant	positive reaction, yellow colour	positive reaction
<i>Salmonella Choleraesuis</i> ATCC 12011	50-100	fair-good	negative reaction	negative reaction
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 25923(00034*)	>=10 ⁴	inhibited		
<i>Escherichia coli</i> ATCC 8739 (00012*)	50-100	luxuriant	positive reaction, yellow colour	positive reaction
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 6538 (00032*)	>=10 ⁴	inhibited		

Key : *Corresponding WDCM numbers, # Formerly known as *Enterobacter aerogenes*

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (7,8).

Reference

1. MacConkey A. T., 1900, The Lancet, ii: 20.
2. Childs E. and Allen, 1953, J. Hyg: Camb. 51:468-477
3. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.
4. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.

5. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C. Lipps WC, Braun-Howland EB, Baxter TE, eds. Standard methods for the Examination of
6. Water and Wastewater, 24th ed. Washington DC: APHA Press; 2023.
7. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
8. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock, D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

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