

## MacConkey HiVeg<sup>®</sup> Agar w/ Bromo Thymol Blue

MV061

### Intended Use:

Recommended for detection of lactose fermenting enteric bacteria from various samples.

### Composition\*\*

Ingredients	g / L
HiVeg <sup>®</sup> peptone	17.000
HiVeg <sup>®</sup> peptone No. 3	3.000
Lactose	10.000
Synthetic detergent	1.500
Sodium chloride	5.000
Bromothymol blue	0.030
Agar	15.000
Final pH ( at 25°C)	7.1±0.2

\*\*Formula adjusted, standardized to suit performance parameters

### Directions

Suspend 51.53 grams in 1000 ml purified / distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

### Principle And Interpretation

MacConkey Agar is the earliest selective and differential medium for cultivation of enteric microorganisms from a variety of clinical specimens (1,2). The original medium contains protein, bile salts, sodium chloride and two dyes. MacConkey Agar w/ Bromo thymol blue is a modification of the original medium by the replacement of the two dyes with a single dye i.e. bromo thymol blue. MacConkey HiVeg<sup>®</sup> Agar w/ Bromo Thymol Blue is same as MacConkey Agar w/ Bromo Thymol Blue except that the animal based peptones are completely replaced with vegetable peptones to avoid the BSE/TSE risks associated with animal peptones.

HiVeg<sup>®</sup> peptone and HiVeg<sup>®</sup> peptone No. 3 serve as the sources of essential nutrients. Lactose is the fermentable carbohydrate source. Lactose fermenting enteric bacteria ferment lactose and produce acidic byproducts. This acidic condition formed causes the pH indicator dye i.e. bromo thymol blue to change colour from blue to yellow. Lactose non-fermenters fail to cause a colour change in the medium. Sodium chloride maintains the osmotic equilibrium of the medium. Synthetic detergent serves to make the medium selective by inhibiting the accompanying gram-positive bacteria.

### 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 specimens. Safety guidelines may be referred in individual safety data sheets.

### Limitations

1. Further biochemical and serological tests must be carried out for complete identification.

### 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 greenish yellow homogeneous free flowing powder

### Gelling

Firm, comparable with 1.5% Agar gel

### Colour and Clarity of prepared medium

Green coloured clear to slightly opalescent gel forms in Petri plates

### Reaction

Reaction of 5.15% w/v aqueous solution at 25°C. pH : 7.1±0.2

### pH

6.90-7.30

### Cultural Response

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

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
# <i>Klebsiella aerogenes</i> ATCC 13048 (00175*)	50-100	luxuriant	≥50%	yellow
<i>Enterococcus faecalis</i> ATCC 29212 (00087*)	≥10 <sup>4</sup>	inhibited	0%	
<i>Escherichia coli</i> ATCC 25922 (00013*)	50-100	luxuriant	≥50%	yellow
## <i>Proteus hauseri</i> ATCC 13315	50-100	luxuriant	≥50%	colourless-light blue
<i>Salmonella</i> Typhi ATCC 6539	50-100	luxuriant	≥50%	colourless-light blue
<i>Shigella flexneri</i> ATCC 12022 (00126*)	50-100	luxuriant	≥50%	colourless-light blue
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 25923 (00034*)	≥10 <sup>4</sup>	inhibited	0%	

Key : (\*) Corresponding WDCM numbers.

(#) Formerly known as *Enterobacter aerogenes*

(##) Formerly known as *Proteus vulgaris*

## 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, 1900, The Lancet, ii:20.
2. MacConkey, 1905, J. Hyg., 5:333.
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. , 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.

6. Lipps WC, Braun-Howland EB, Baxter TE, eds. Standard methods for the Examination of 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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