



## MacConkey Agar II w/o CV

M1819

### Intended Use:

For selective isolation and differentiation of lactose fermenting and lactose non-fermenting enteric bacteria.

### Composition\*\*

Ingredients	g/ L
Tryptone	1.500
Peptone	1.500
Gelatin peptone	17.000
Lactose	10.000
Bile Salts	1.500
Sodium chloride	5.000
Neutral red	0.030
Agar	13.500
Final pH ( at 25°C)	7.1±0.2

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

### Directions

Suspend 50.03 grams in 1000 ml purified / distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates. The surface of the medium should be dry when inoculated.

### 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). Subsequently MacConkey Agar and Broth have been recommended for use in microbiological examination of foodstuffs (3) and for direct plating / inoculation of water samples for coliform counts (4). These media are also accepted by the Standard Methods for the Examination of Milk and Dairy Products (5).

MacConkey Agar II w/o CV is the selective and differential medium. This media is specially designed to improve the inhibition of swarming *Proteus* species and to achieve more definitive differentiation of lactose fermenters. This medium is slightly selective since the concentration of bile salts which inhibits gram-positive microorganisms, is low in comparison with other enteric plating media. Differentiation of enteric microorganisms is achieved by combination of lactose and neutral red indicator. Gram-negative bacteria are differentiated by their ability to ferment lactose. Lactose fermenting strains grow as red or pink colonies. The red colour is due to production of acid from lactose, absorption of neutral red and a subsequent colour change of the dye when the pH of medium falls below 6.8. Lactose non-fermenting strains, such as *Shigella* and *Salmonella* are colourless and transparent and typically do not alter appearance of the medium. *Yersinia enterocolitica* may appear as small, non-lactose fermenting colonies after incubation at room temperature.

### Type of specimen

Clinical samples - faeces, urine, pus; Food and dairy samples; Water samples

### Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (6,7).

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (3,5).

For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards (4).

After use, contaminated materials must be sterilized by autoclaving before discarding.

### Warning and Precautions

In Vitro diagnostic Use. For professional use only. 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. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium.
2. Each lot of the medium has been tested for the organisms specified on the COA. It is recommended to users to validate the medium for any specific microorganism other than mentioned in the COA based on the user's unique requirement.
3. 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

Light yellow to pink homogeneous free flowing powder

### Gelling

Firm comparable with 1.35% Agar gel.

### Colour and Clarity of prepared medium

Red with purplish tinge clear to slightly opalescent gel forms in Petri plates.

### Reaction

Reaction of 5.00% 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>Escherichia coli</i> ATCC 25922 (00013*)	50-100	luxuriant	≥50%	pink to red with bile precipitate
# <i>Klebsiella aerogenes</i> ATCC 13048 (00175*)	50-100	luxuriant	≥50%	pink to red
<i>Enterococcus faecalis</i> ATCC 29212 (00087*)	50-100	fair to good	30-40%	pale pink to red
<i>Proteus vulgaris</i> ATCC 13315	50-100	luxuriant	≥50%	colourless
<i>Salmonella</i> Paratyphi A ATCC 9150	50-100	luxuriant	≥50%	colourless
<i>Shigella flexneri</i> ATCC 12022 (00126*)	50-100	fair to good	30-40%	colourless
<i>Salmonella</i> Paratyphi B ATCC 8759	50-100	luxuriant	≥50%	colourless
<i>Salmonella</i> Enteritidis ATCC 13076 (00030*)	50-100	luxuriant	≥50%	colourless
<i>Salmonella</i> Typhi ATCC 6539	50-100	luxuriant	≥50%	colourless
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 25923 (00034*)	≥10 <sup>4</sup>	inhibited	0%	
<i>Escherichia coli</i> ATCC 8739 (00012*)	50-100	luxuriant	≥50%	pink to red with bile precipitate
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 6538 (00032*)	≥10 <sup>4</sup>	inhibited	0%	
<i>Salmonella</i> Typhimurium ATCC 14028 (00031*)	50-100	luxuriant	≥50%	colourless

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 2-8°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 clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (6,7).

## Reference

1. MacConkey, 1900, The Lancet, ii:20.
2. MacConkey, 1905, J. Hyg., 5:333.
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4. Lipps WC, Braun-Howland EB, Baxter TE, eds. Standard methods for the Examination of Water and Wastewater, 24th ed. Washington DC:APHA Press; 2023.
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. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
7. 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.

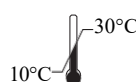
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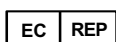
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Plot No.C-40, Road No.21Y,  
MIDC, Wagle Industrial Area,  
Thane (W) -400604, MS, India



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