**Intended Use:**
Recommended for cultivation and differentiation of enteric bacteria, restricting swarming of *Proteus* species from specimens such as urine which may contain large number of *Proteus* species as well as potentially pathogenic Gram positive organisms.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peptone</td>
<td>20.000</td>
</tr>
<tr>
<td>Lactose</td>
<td>10.000</td>
</tr>
<tr>
<td>Sodium taurocholate</td>
<td>5.000</td>
</tr>
<tr>
<td>Neutral red</td>
<td>0.040</td>
</tr>
<tr>
<td>Agar</td>
<td>20.000</td>
</tr>
<tr>
<td>Final pH (at 25°C)</td>
<td>7.4±0.2</td>
</tr>
</tbody>
</table>

**Directions**

MacConkey Agar is a ready to use solid media in glass bottle. The medium is pre-sterilized, hence it does not need sterilization. Medium in the bottle can be melted either by using a pre-heated water bath or any other method. Slightly loosen the cap before melting. When complete melting of medium is observed dispense the medium in tubes as butts/slants or in plates as desired and allow to solidify. If on plate, either streak, inoculate or surface spread the test inoculum (50-100 CFU) aseptically.

**Principle And Interpretation**

MacConkey Agar is the earliest selective and differential medium for cultivation of enteric microorganisms from a variety of clinical specimens (4,5). Subsequently MacConkey Agar and Broth have been recommended for use in microbiological examination of foodstuffs (2) and for direct plating/inoculation of water samples for coliform counts (1). These media are also accepted by the Standard Methods for the Examination of Milk and Dairy Products (8) and pharmaceutical preparations (7).

Original medium contains protein, bile salts, sodium chloride and two dyes. The selective action of this medium is attributed to bile salts, which are inhibitory to most species of gram-positive bacteria. MacConkey Agar w/o CV, NaCl and W/ 0.5% Sodium taurocholate is a modification of the original formulation with the exclusion of crystal violet and inclusion of sodium taurocholate instead of bile salts. Gram-negative bacteria usually grow well on the medium and are differentiated by their ability to ferment lactose. Lactose fermenting strains grow as red or pink and may be surrounded by a zone of acid precipitated bile. 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- faeces, urine, Food and Dairy samples, Water samples.

**Specimen Collection and Handling**

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (2,3).

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (6,8).

For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards(1). After use, contaminated materials must be sterilized by autoclaving before discarding.

**Warning and Precautions**

In Vitro diagnostic use. Read the label before opening the pack. 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. The medium differentiates organisms on the basis of lactose fermentation. Further biochemical test must be carried out for confirmation.
2. The surface of the medium should be dry before inoculation.

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
Sterile MacConkey Agar in glass bottle.

Colour of medium
Orange red coloured medium

Quantity of medium
100 ml of medium in glass bottle.

Reaction
7.20-7.60

Sterility Test
Passes release criteria

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

<table>
<thead>
<tr>
<th>Organism</th>
<th>Inoculum (CFU)</th>
<th>Growth</th>
<th>Recovery</th>
<th>Colour of Colony</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Salmonella Paratyphi B</em> ATCC 8759</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><em>Salmonella Typhi ATCC 6539</em></td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><em>Salmonella Enteritidis ATCC 13076 (00030</em>)*</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><em>Staphylococcus aureus subsp. aureus ATCC 25923 (00034</em>)*</td>
<td>50-100</td>
<td>fair-good</td>
<td>30-40%</td>
<td>pale pink - red</td>
</tr>
<tr>
<td><em>Salmonella Paratyphi A ATCC 9150</em></td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><em>Escherichia coli ATCC 25922 (00013</em>)*</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>pink to red with bile precipitate</td>
</tr>
<tr>
<td><em>Enterococcus faecalis ATCC 29212 (00087</em>)*</td>
<td>50-100</td>
<td>fair to good</td>
<td>30-40%</td>
<td>pale pink to red</td>
</tr>
<tr>
<td><em>Shigella flexneri ATCC 12022 (00126</em>)*</td>
<td>50-100</td>
<td>fair to good</td>
<td>30-40%</td>
<td>colourless</td>
</tr>
<tr>
<td># Klebsiella aerogenes ATCC 13048 (00175*) #</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>pale pink to red</td>
</tr>
<tr>
<td><em>Proteus vulgaris ATCC 13315</em></td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
</tbody>
</table>

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

Storage and Shelf Life
On receipt store between 15-25°C Use before expiry date on the label. Product performance is best if used within stated expiry period.

Please refer disclaimer Overleaf.
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 (2,3).

Reference
2. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition

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