MacConkey HiVeg™ Agar w/o CV, w/ 0.0075% NR and 1.2% Agar

**Intended use**
Recommended for the isolation and differentiation of lactose fermenting and lactose non-fermenting enteric bacteria.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>HiVeg™ peptone</td>
<td>20.000</td>
</tr>
<tr>
<td>Lactose</td>
<td>10.000</td>
</tr>
<tr>
<td>Synthetic detergent</td>
<td>2.000</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>5.000</td>
</tr>
<tr>
<td>Neutral red</td>
<td>0.075</td>
</tr>
<tr>
<td>Agar</td>
<td>12.000</td>
</tr>
<tr>
<td>Final pH (at 25°C)</td>
<td>7.4±0.2</td>
</tr>
</tbody>
</table>

**Directions**
Suspend 52.0 grams in 1000 ml purified/distilled water. Heat to boiling with gentle swirling to dissolve the agar completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Avoid overheating. 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 Medium is the earliest selective and differential medium for cultivation of enteric microorganisms from a variety of clinical specimens (4,5). Subsequently MacConkey Agar is recommended for use in microbiological examination of foodstuffs (4) and for direct plating/inoculation of water samples for coliform counts (5). This medium is also accepted by the Standard Methods for the Examination of Milk and Dairy Products (6) and pharmaceutical preparations (1). MacConkey HiVeg™ Agar w/o CV, w/ 0.0075% NR and 1.2% Agar is prepared by completely replacing animal based peptone with vegetable peptones to avoid BSE/TSE risks associate with animal peptones.

HiVeg™ peptone serves as the source of carbon, nitrogen, long chain amino acids and other essential nutrients. Lactose is the fermentable carbohydrate with neutral red serving as the pH indicator. Sodium chloride maintains the osmotic equilibrium of the medium. Synthetic detergent serve to make the medium selective. 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.

**Type of specimen**
Clinical samples - Faeces, urine, blood   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 (5). 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 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. Although this medium is selective for gram negative organisms, biochemical identification and serological testing using pure cultures is recommended for complete identification.
2. It is advised to incubate for recommended period and temperature to avoid misinterpretation of results.
3. It is advised to read the results immediately after incubation, as overgrowth of *Proteus* species may mask other colonies.

### 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 1.2% Agar gel

**Colour and Clarity of prepared medium**
Orange red coloured clear to slightly opalescent gel forms in Petri plates

**Reaction**
Reaction of 5.2% 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.

<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>Escherichia coli</em> ATCC 25922</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>pink to red with bile precipitate</td>
</tr>
<tr>
<td># <em>Klebsiella aerogenes</em> ATCC 13048</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>pink to red</td>
</tr>
<tr>
<td><em>Enterococcus faecalis</em> ATCC 29212</td>
<td>50-100</td>
<td>fair-good</td>
<td>30-40%</td>
<td>pale pink to red</td>
</tr>
<tr>
<td><em>Proteus vulgaris</em> ATCC 13315</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><em>Salmonella Paratyphi A</em> ATCC 9150</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><em>Shigella flexneri</em> ATCC 12022</td>
<td>50-100</td>
<td>fair to good</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<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 Enteritidis</em> ATCC 13076</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><em>Salmonella Typhi</em> ATCC 6539</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><em>Staphylococcus aureus</em> subsp. <em>aureus</em> ATCC 25923</td>
<td>50-100</td>
<td>fair-good</td>
<td>30-40%</td>
<td>pale pink to red</td>
</tr>
</tbody>
</table>

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 inorder 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. Use before expiry date on the label.

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 off in accordance with current laboratory techniques (2,3).

Reference


Revision : 00 / 2020