Tetrathionate Brilliant Green HiCynth™ Broth

**Intended Use:**
Recommended for isolation and identification of Salmonellae.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>HiCynth™ Peptone No.2*</td>
<td>16.50</td>
</tr>
<tr>
<td>Synthetic detergent no. 1</td>
<td>0.10</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>6.40</td>
</tr>
<tr>
<td>Calcium carbonate</td>
<td>20.00</td>
</tr>
<tr>
<td>Potassium tetrathionate</td>
<td>20.00</td>
</tr>
<tr>
<td>Brilliant green</td>
<td>0.07</td>
</tr>
<tr>
<td>Final pH (at 25°C)</td>
<td>7.0±0.2</td>
</tr>
</tbody>
</table>

*Formula adjusted, standardized to suit performance parameters

* Chemically defined peptones

**Directions**

Suspend 63.07 grams in 1000 ml purified / distilled water. Heat just to boiling. DO NOT AUTOCLAVE OR REHEAT. Dispense into sterile tubes or flasks as desired.

Note: Due to the presence of calcium carbonate, the prepared medium forms opalescent solution with white precipitate.

**Principle And Interpretation**

*Salmonella* are gram-negative, facultatively anaerobic, non-sporulating, non-motile rods in the family *Enterobacteriaceae*. They are widely distributed in animals affecting mainly the stomach and the intestines. These organisms are difficult to differentiate biochemically from *Escherichia coli*. Tetrathionate Broth was originally described by Mueller (7) and later modified by Kauffman (4,5). Tetrathionate Brilliant Green Bile Broth is used as an enrichment medium for *Salmonella*. Enrichment broth is usually recommended to facilitate the recovery of small numbers of *Salmonella* species (4). Tetrathionate Brilliant Green Bile Broth is also mentioned in I.P. (1) for isolation and identification of Salmonella species from foods, water and other materials of sanitary importance. It is not suitable for growth of *Salmonella* Typhi and *Salmonella* Paratyphi (6). Tetrathionate Brilliant Green HiCynth™ Broth is prepared by replacing animal and vegetable peptones with chemically defined peptones to avoid BSE/TSE risks associated with animal peptones.

HiCynth™ Peptone No.2 in the medium provides nitrogenous and carbonaceous compounds, long chain amino acids, vitamins and nutrients for growth of *Salmonella*. Brilliant green and Synthetic detergent no. 1 inhibit both gram-positive as well as some selected gram-negative organisms. Potassium tetrathionate inhibits normal flora of faecal specimens. Sodium chloride helps in maintaining osmotic equilbrium. After incubation, streak the culture from Tetrathionate Brilliant Green HiCynth™ Broth (MCD1255) onto differential medium for isolation and identification.

**Type of specimen**

Food samples

**Specimen Collection and Handling**

For food samples, follow appropriate techniques for sample collection and processing as per guidelines (8). 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. For further confirmation, streak the enriched cultures after incubation, on plates of Brilliant Green HiCynth™ Agar Base, Modified (MCD016), MacConkey HiCynth™ Agar w/o CV and NaCl (MCD081) and Bismuth Sulphite HiCynth™ Agar (MCD027).

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 pale green homogeneous free flowing powder

Colour and Clarity of prepared medium
Bluish green coloured opalescent solution with white precipitate.

Reaction
Reaction of 6.3% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH
6.80-7.20

Cultural Response
Cultural characteristics observed when subcultured on MacConkey HiCynth™ Agar w/o CV and NaCl (MCD082) 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><strong>Escherichia coli ATCC 25922</strong></td>
<td>50-100</td>
<td>fair</td>
<td>20-30%</td>
<td>pink to red with bile precipitate</td>
</tr>
<tr>
<td><strong>Salmonella Typhi ATCC 6539</strong></td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><strong>Salmonella Typhimurium ATCC 14028</strong></td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><strong>Salmonella Enteritidis ATCC 50-100</strong></td>
<td>13076</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
</tr>
<tr>
<td><strong>Staphylococcus aureus subsp. aureus ATCC 25923</strong></td>
<td>10⁴</td>
<td>inhibited</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td><strong>Staphylococcus aureus subsp. aureus ATCC 6538</strong></td>
<td>10⁴</td>
<td>inhibited</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td><strong>Escherichia coli ATCC 8739</strong></td>
<td>50-100</td>
<td>fair</td>
<td>20-30%</td>
<td>pink to red with bile precipitate</td>
</tr>
<tr>
<td><strong>Escherichia coli NCTC 9002</strong></td>
<td>50-100</td>
<td>fair</td>
<td>20-30%</td>
<td>Pink to red with bile precipitate</td>
</tr>
<tr>
<td><strong>Staphylococcus aureus NCIMB 9518</strong></td>
<td>10⁴</td>
<td>inhibited</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

Key : (*) Corresponding WDCM numbers.

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. 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

1. Indian Pharmacopoeia, 2018, Ministry of Health and Family Welfare, Govt. of India,


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