HiCrome™ MeReSa HiCynth™ Agar Base

Intended use

HiCrome MeReSa HiCynth™ Agar Base is recommended for the isolation and selective identification of Methicillin Resistant *Staphylococcus aureus* (MRSA) from clinical isolates.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>HiCynth™ Peptone No.2*</td>
<td>13.000</td>
</tr>
<tr>
<td>HiCynth™ Peptone No.5*</td>
<td>5.000</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>40.000</td>
</tr>
<tr>
<td>Sodium pyruvate</td>
<td>5.000</td>
</tr>
<tr>
<td>Chromogenic mixture</td>
<td>5.300</td>
</tr>
<tr>
<td>Agar</td>
<td>15.000</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 41.65 grams in 500 ml 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. Aseptically add sterile rehydrated contents of 1 vial of MeReSa Selective Supplement (FD229) & Cefoxitin supplement (FD259) for selectivity. Mix well and pour into sterile Petri plates.

**Principle And Interpretation**

*Staphylococcus aureus* is an invasive pathogen that can cause disease in almost any tissue or organ in the human body, primarily in compromised individuals (1). Staphylococcal infections were earlier treated using Penicillin. But over the years resistance to this drug developed. Methicillin was the next drug of choice. While methicillin is very effective in treating most *Staphylococcus* infections some strains have developed resistance to methicillin and can no longer be killed by this antibiotic. These resistant bacteria are called Methicillin Resistant *Staphylococcus aureus* (MRSA) (2). Patients with breaks in their skin due to wounds, indwelling catheters or burns are those with certain risk of developing MRSA infection (3). Spread of MRSA infections can be controlled to a great extent by maintaining personal hygiene after interaction with an MRSA infected person (2).

HiCynth™ Peptone No.2 and HiCynth™ Peptone No.5 provides carbonaceous, nitrogenous substances, amino acids, Vitamin B complex and other essential nutrients. The chromogenic mixture incorporated in the medium is specifically cleaved by *Staphylococcus aureus* to give bluish green coloured colonies. Sodium pyruvate enhances the growth of *Staphylococcus* species. Sodium chloride in the medium helps to maintain the osmotic equilibrium of the medium. High concentration of sodium chloride also helps in inhibiting the accompanying microflora. Cefoxitin is recommended to use for selective isolation of MRSA. The medium is made selective for MRSA by the addition of MeReSa Selective Supplement (FD229) & Cefoxitin supplement (FD259) in combination.

**Type of specimen**

Clinical samples - Mouth, skin, intestine, upper respiratory tract of humans, urine

**Specimen Collection and Handling**

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (4,5).

**Warning and Precautions**

In Vitro diagnostic 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. Certain strains of MRSA which are intermediate may show poor growth. Further incubation up to 48 hours should be carried out.
2. Some strains may show poor growth due to varying nutritional requirements.
3. Further sensitivity can be carried out to ascertain the extent of resistance.
4. Further biochemical tests must be carried out to differentiate between MRSA and MRSE.

**Performance and Evaluation**
Performance of the medium is expected when used as per the directions on the label within the expiry period when stored at recommended temperature.

**Quality Control**

**Appearance**
Cream to yellow homogeneous free flowing powder

**Gelling**
Firm, comparable with 1.5% Agar gel

**Colour and Clarity of prepared medium**
Light yellow coloured, clear to slightly opalescent gel forms in Petri plates

**Reaction**
Reaction of 8.33% w/v aqueous solution 25°C. pH : 7.0±0.2

**pH**
6.80-7.20

**Cultural Response**
Cultural characteristics observed with added MeReSa Selective Supplement (FD229) & Cefoxitin Supplement (FD259) after an incubation at 35-37°C for 18-48 hours.

**Cultural Response**

<table>
<thead>
<tr>
<th>Organism</th>
<th>Inoculum (CFU)</th>
<th>Growth w/ FD229 &amp; FD259</th>
<th>Recovery w/ FD229 &amp; FD259</th>
<th>Colour of Colony</th>
</tr>
</thead>
<tbody>
<tr>
<td><em><em>Escherichia coli ATCC 25922 (00013</em>)</em>*</td>
<td>50-100</td>
<td>inhibited</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td><em><em>Enterococcus faecalis ATCC 29212 (00087</em>)</em>*</td>
<td>50-100</td>
<td>inhibited</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td><em><em>Staphylococcus aureus subsp. aureus ATCC 25923 (00034</em>)</em>*</td>
<td>50-100</td>
<td>inhibited</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td><em><em>Staphylococcus aureus subsp. aureus ATCC 6538 (00032</em>)</em>*</td>
<td>50-100</td>
<td>inhibited</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td><strong>Staphylococcus aureus, MRSA ATCC 43300</strong></td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>Light blue -green</td>
</tr>
<tr>
<td><em><em>Staphylococcus epidermidis ATCC 12228 (00036</em>)</em>*</td>
<td>&gt;=10⁷</td>
<td>inhibited</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td><strong>Staphylococcus xylosus ATCC 29971</strong></td>
<td>50-100</td>
<td>inhibited</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

**Storage and Shelf Life**
Store between 2-8°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.
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 (4,5).

Reference

3. Dr. Alan Johnson, methicillin resistant staphylococcus aureus (MRSA) infection. The Support group for MSRA sufferers and Dependents, Aug 1st , 2005.