Monsur Medium Base

**Intended Use:**
Recommended for selective isolation and differentiation of *Vibrio cholerae* and other *Vibrio* species from pathological samples like faeces or rectal swabs.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tryptone</td>
<td>10.000</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>10.000</td>
</tr>
<tr>
<td>Sodium taurocholate</td>
<td>5.000</td>
</tr>
<tr>
<td>Sodium carbonate</td>
<td>1.000</td>
</tr>
<tr>
<td>Gelatin</td>
<td>30.000</td>
</tr>
<tr>
<td>Agar</td>
<td>15.000</td>
</tr>
<tr>
<td>Final pH (at 25°C)</td>
<td>8.5±0.2</td>
</tr>
</tbody>
</table>

**Directions**
Suspend 7.1 grams in 100 ml warm purified / distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 115°C (10 lbs pressure) for 20 minutes. Cool to 45-50°C. Aseptically add 0.5 ml sterile 1% Potassium Tellurite Solution (FD052). Mix well and pour into sterile Petri plates.

**Principle And Interpretation**

*Vibrio’s* are fairly easy to isolate from both clinical and environmental material, though some species may require growth factors and/or vitamins. *Vibrio parahaemolyticus* is the leading cause of bacterial diarrhoea associated with the consumption of contaminated food products. *Vibrio cholerae* is a non-halophilic *Vibrio* which cannot grow in media with a concentration of sodium chloride greater than 5-6% and is able to grow in media lacking NaCl (1). Human disease is associated with ingestion of contaminated water or food. *V. cholerae* is the etiological agent of a secretory diarrhea spread by the faecal-oral route. The most critical virulence factor of *V. cholerae* is CT (cytotoxin), which is responsible for the main symptom of the cholera disease (2). Monsur Medium was formulated by Monsur (5) and recommended by WHO (6) for the isolation of *V. cholerae* and other *Vibrio* species from pathological samples like faeces or rectal swabs. This medium is also known as Taurocholate Tellurite Gelatin Agar. On this medium, the colonies are often surrounded by a gelatin liquefaction halo, which becomes definite and clearly visible after 48 hours incubation.

Tryptone in the medium supplies nitrogen and carbon compounds, long chain amino acids, vitamins and essential nutrients. Sodium taurocholate inhibits the contaminating gram-positive bacteria. Potassium tellurite is a selective and differential agent. It inhibits many gram-positive bacteria and due to the reduction reaction the colonies form a grey to black colour. Sodium chloride maintains the osmotic equilibrium while sodium carbonate helps in maintaining the elevated pH of the medium. Gelatin acts as an additional carbon and energy source. The high pH and potassium tellurite are inhibitory to most *Enterobacteriaceae* and gram-positive bacteria, though *Proteus* may form grey centered colonies without a halo. After 24 hours *Vibrio’s* show small translucent colonies with a grey-black center and a turbid halo, at 48 hours and longer, colonies become black centered with a well-defined halo.

**Type of specimen**
Clinical: Faeces or rectal swabs.

**Specimen Collection and Handling**
For clinical samples follow appropriate techniques for handling specimens as per established guidelines (3,4).

After use, contaminated materials must be sterilized by autoclaving before discarding.
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. Many members of the genus *Vibrio* have similar characteristics on this medium, additional tests (antisera and/or biochemical) are necessary to screen isolates from this medium.
2. Certain *Vibrio* species may not grow due to the high pH and potassium tellurite which are inhibitory.

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**
Cream to greenish yellow coarse free flowing powder

**Gelling**
Firm, comparable with 1.5% Agar gel and 3.0% Gelatin gel

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

**Reaction**
Reaction of 7.1% w/v aqueous solution at 25°C. pH : 8.5±0.2

**pH**
8.30-8.70

**Cultural Response**
Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours with added 1% Potassium Tellurite Solution (FD052).

<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>Proteus mirabilis</em> ATCC 25933</td>
<td>50-100</td>
<td>none-poor</td>
<td>&lt;=10%</td>
<td>black</td>
</tr>
<tr>
<td><em>Vibrio cholerae</em> ATCC 15748</td>
<td>50-100</td>
<td>good-luxuriant</td>
<td>&gt;=50%</td>
<td>grey</td>
</tr>
<tr>
<td><em>Vibrio parahaemolyticus</em> ATCC 17802 (00037*)</td>
<td>50-100</td>
<td>good-luxuriant</td>
<td>&gt;=50%</td>
<td>light grey</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.

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 (3,4).

Reference

Please refer disclaimer Overleaf.


**In vitro diagnostic medical device**

**CE Marking**

**Storage temperature**

10°C - 30°C

**Do not use if package is damaged**

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