**Leifson Agar, Granulated**

**Intended use**

Leifson Agar, Granulated is recommended for isolation of *Salmonella* and *Shigella* species from clinical and non-clinical samples.

**Composition**

**Ingredients**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>HM extract#</td>
<td>5.000</td>
</tr>
<tr>
<td>HM peptone $</td>
<td>5.000</td>
</tr>
<tr>
<td>Lactose</td>
<td>10.000</td>
</tr>
<tr>
<td>Sodium thiosulphate</td>
<td>5.400</td>
</tr>
<tr>
<td>Sodium citrate</td>
<td>6.000</td>
</tr>
<tr>
<td>Ferric citrate</td>
<td>1.000</td>
</tr>
<tr>
<td>Sodium deoxycholate</td>
<td>3.000</td>
</tr>
<tr>
<td>Neutral red</td>
<td>0.020</td>
</tr>
<tr>
<td>Agar</td>
<td>12.000</td>
</tr>
<tr>
<td>Final pH (at 25°C)</td>
<td>7.5±0.2</td>
</tr>
</tbody>
</table>

**Formula adjusted, standardized to suit performance parameters**

# - Equivalent to Meat extract

$ - Equivalent to Meat peptone

**Directions**

Suspend 47.42 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE OR OVERHEAT. Excessive heating is detrimental. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

**Principle And Interpretation**

*Salmonella* and *Shigella* 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. Leifson Agar is recommended for isolation of *Salmonella* and *Shigella* species (1).

HM extract and HM peptone provide essential growth nutrients. Sodium deoxycholate inhibit all gram-positive bacteria. Lactose is added to the medium to allow differentiation of lactose fermenting bacteria such as *Escherichia coli* from nonlactose fermenting species such as *Salmonella* and *Shigella* species. Lactose fermenting strains grow as red to pink colonies because of absorption of neutral red indicator. Sodium thiosulphate and ferric citrate forms the H2S indicator system. Non-fermenting species grow as colourless colonies with black centres due to production of H2S against *Shigella* which does not produce H2S (2).

**Type of specimen**

Clinical samples - Blood; Food and dairy samples; Water samples

**Specimen Collection and Handling**

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

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (3,6,8).

For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(6)

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. Further confirmation must be carried out by biochemical and serological tests.
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 granular medium.

Gelling
Firm, comparable with 1.2% Agar gel.

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

Reaction
Reaction of 4.74% w/v aqueous solution at 25°C. pH : 7.5±0.2

pH
7.30-7.70

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>
<th>H2S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escherichia coli ATCC 25922</td>
<td>50-100</td>
<td>poor</td>
<td>10-20%</td>
<td>pink w/bile precipitate</td>
<td>negative reaction</td>
</tr>
<tr>
<td>Enterococcus faecalis ATCC ≥10⁵</td>
<td>inhibited</td>
<td>0 %</td>
<td></td>
<td>colourless</td>
<td></td>
</tr>
<tr>
<td>Salmonella Enteritidis ATCC50-100</td>
<td>good-luxuriant</td>
<td>≥50%</td>
<td></td>
<td>colourless</td>
<td>positive reaction, black centred colonies</td>
</tr>
<tr>
<td>Shigella flexneri ATCC 12022</td>
<td>50-100</td>
<td>good</td>
<td>40-50%</td>
<td>colourless</td>
<td>negative reaction</td>
</tr>
<tr>
<td>Salmonella Typhimurium ATCC 14028</td>
<td>50-100</td>
<td>luxuriant</td>
<td>≥50%</td>
<td>colourless</td>
<td>positive reaction, black centred colonies</td>
</tr>
</tbody>
</table>

Key : * Corresponding WDCM numbers

Storage and Shelf Life
Store below 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 (4,5).

Reference

Please refer disclaimer Overleaf.


In vitro diagnostic medical device

CE Marking

Storage temperature

Do not use if package is damaged

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Disclaimer :

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