Leifson Agar

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

Composition**

<table>
<thead>
<tr>
<th>Ingredients</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 purified / 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 (6).

HM extract and HM peptone provides nitrogenous and carbonaceous compounds, long chain amino acids and other 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 non-lactose 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 colorless colonies with black centers due to production of H2S against *Shigella* which does not produce H2S (7).

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 (1,3,8).
For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards. (3) 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. This medium is general purpose medium and may not support the growth of fastidious organisms.
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
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 (00013*)</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 &amp;=10⁴ 29212 (00087*)</td>
<td>inhibited</td>
<td>0 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salmonella Enteritidis ATCC50-100 13076 (00030*)</td>
<td>good-luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
<td>positive reaction, black centred colonies</td>
<td></td>
</tr>
<tr>
<td>Shigella flexneri ATCC 12022 (00126*)</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 (00031*)</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>colourless</td>
<td>positive reaction, black centred colonies</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.

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

$10^\circ\text{C}$

$30^\circ\text{C}$

Do not use if package is damaged

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Disclaimer:

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