Lead Acetate Agar

Intended Use:
Recommended for detection of hydrogen sulphide producing enteric bacteria.

Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peptone</td>
<td>15.000</td>
</tr>
<tr>
<td>Proteose peptone</td>
<td>5.000</td>
</tr>
<tr>
<td>Dextrose (Glucose)</td>
<td>1.000</td>
</tr>
<tr>
<td>Lead acetate</td>
<td>0.200</td>
</tr>
<tr>
<td>Sodium thiosulphate</td>
<td>0.080</td>
</tr>
<tr>
<td>Agar</td>
<td>15.000</td>
</tr>
<tr>
<td>Final pH (at 25°C)</td>
<td>6.6±0.2</td>
</tr>
</tbody>
</table>

**Formula adjusted, standardized to suit performance parameters

Directions
Either streak, inoculate or surface spread the test inoculum (50-100 CFU) aseptically on the plate.

Principle And Interpretation
Salmonella, Shigella, Yersinia species and certain strains of Escherichia coli cause severe gastroenteritis and life-threatening systemic illness in human (1, 6). Of these, Salmonella Typhi can be differentiated due to their ability to form hydrogen sulphide (7). Lead Acetate Agar is the modification of the original formulation of Spray (8). This medium was successfully used to study hydrogen sulphide production (5,8). Lead Acetate Agar can also be used to differentiate between Salmonella Paratyphi A and Salmonella Paratyphi B (3). The latter produces hydrogen sulphide, observed as browning of the medium, within 18-24 hours, whereas the former fails to produces hydrogen sulphide.

Peptone, proteose peptone and dextrose provide all the essential nutrients for the growth of bacteria. Bacteria capable of using sulphur from sodium thiosulphate in their metabolic activities produce hydrogen sulphide. Lead acetate acts as an indicator of hydrogen sulphide production observed as browning of the medium. Dextrose is the fermentable carbohydrate source. Production of gas from dextrose is indicated by the presence of bubbles in the butt.

Type of specimen
Clinical sample-Isolated samples from faeces

Specimen Collection and Handling
For clinical samples follow appropriate techniques for handling specimens as per established guidelines (2,4).

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. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium
2. Each lot of the medium has been tested for the organisms specified on the COA. It is recommended to users to validate the medium for any specific microorganism other than mentioned in the COA based on the user’s unique requirement
3. It is recommended to store the plates to 24-30°C to avoid minimum condensation.
**Quality Control**

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

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

**Colour and Clarity of prepared medium**
Medium amber coloured clear to slightly opalescent gel forms in tubes as slants

**Reaction**
Reaction of 3.63% w/v aqueous solution at 25°C. pH : 6.6±0.2

**pH**
6.40-6.80

**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>Gas Production</th>
<th>H2S production</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Escherichia coli ATCC 25922 (00013</em>)</td>
<td>50-100</td>
<td>luxuriant</td>
<td>positive reaction</td>
<td>negative reaction</td>
</tr>
<tr>
<td># Klebsiella aerogenes ATCC 13048 (00175*)</td>
<td>50-100</td>
<td>luxuriant</td>
<td>positive reaction</td>
<td>negative reaction</td>
</tr>
<tr>
<td><em>Salmonella Paratyphi A ATCC 9150</em></td>
<td>50-100</td>
<td>luxuriant</td>
<td>negative reaction</td>
<td>negative reaction</td>
</tr>
<tr>
<td><em>Salmonella Paratyphi B ATCC 8759</em></td>
<td>50-100</td>
<td>luxuriant</td>
<td>negative reaction</td>
<td>positive reaction, browning of the medium</td>
</tr>
<tr>
<td><em>Salmonella Typhi ATCC 6539</em></td>
<td>50-100</td>
<td>luxuriant</td>
<td>variable reaction</td>
<td>positive reaction, browning of the medium</td>
</tr>
<tr>
<td><em>Salmonella Typhimurium ATCC 14028 (00031</em>)</td>
<td>50-100</td>
<td>luxuriant</td>
<td>negative reaction</td>
<td>positive reaction, browning of the medium</td>
</tr>
<tr>
<td><em>Shigella dysenteriae ATCC 13313</em></td>
<td>50-100</td>
<td>luxuriant</td>
<td>negative reaction</td>
<td>negative reaction</td>
</tr>
<tr>
<td><em>Shigella flexneri ATCC 12022 (00126</em>)</td>
<td>50-100</td>
<td>luxuriant</td>
<td>negative reaction</td>
<td>negative reaction</td>
</tr>
</tbody>
</table>

Key : (*) Corresponding WDCM numbers.
(#) Formerly known as *Enterobacter aerogenes*

**Storage and Shelf Life**
Store between 20-30°C. Use before expiry period 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 (2,4).

**Reference**

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Please refer disclaimer Overleaf.


7. Orlowski, 1897, Dissert, St. Petersburg.


**Disclaimer:**

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