Mueller Hinton Broth

Mueller Hinton Broth is recommended to determine the susceptibility of bacteria to sulphonamides by the tube dilution method. Also used for primary isolation of gonococci and meningococci.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef, infusion from</td>
<td>300.000</td>
</tr>
<tr>
<td>Casein acid hydrolysate</td>
<td>17.500</td>
</tr>
<tr>
<td>Starch</td>
<td>1.500</td>
</tr>
<tr>
<td><strong>Final pH (at 25°C)</strong></td>
<td>7.3±0.1</td>
</tr>
</tbody>
</table>

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

**Directions**

Suspend 21 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Mix well and pour into tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

*Note: It is suggested to boil the medium before autoclaving to avoid settling of starch at the bottom.*

**Principle And Interpretation**

The Mueller Hinton formulation was originally developed as a simple, transparent agar medium for the cultivation of pathogenic *Neisseria* species (1). Other media were subsequently developed that replaced the use of Mueller Hinton Agar for the cultivation of pathogenic *Neisseria* species, but it became widely used in the determination of sulfonamide resistance of gonococci and other organisms. Mueller Hinton Broth is recommended for dilution antimicrobial susceptibility testing of all species of most commonly encountered aerobic and facultatively anaerobic bacteria (2,3).

Beef infusion and casein acid hydrolysate provide nitrogenous compounds, carbon, sulphur and other essential nutrients. Starch acts as a protective colloid against toxic substances present in the medium. Starch hydrolysis yields dextrose, which serves as a source of energy. These ingredients are selected for low thymine and thymidine content as determined by MIC values for *Enterococcus faecalis* with sulfamethoxazole-trimethoprim (SXT). Calcium and magnesium ion concentrations are adjusted to provide the amounts recommended by CLSI to give the correct MIC values with aminoglycosides and *Pseudomonas aeruginosa* (3).

**Quality Control**

**Appearance**
Cream to yellow coloured granular media

**Colour and Clarity of prepared medium**
Light amber coloured clear solution in tubes

**Reaction**
Reaction of 2.1% w/v aqueous solution at 25°C. pH : 7.3±0.1

**pH**
7.20-7.40

**Cultural Response**
Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

**Cultural Response**

<table>
<thead>
<tr>
<th>Organism</th>
<th>Inoculum (CFU)</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Escherichia coli ATCC 25922</em></td>
<td>50-100</td>
<td>good-luxuriant</td>
</tr>
<tr>
<td><em>Haemophilus influenzae ATCC 49247</em></td>
<td>50-100</td>
<td>good-luxuriant (in Mueller Hinton)</td>
</tr>
</tbody>
</table>

Please refer disclaimer Overleaf.
Neisseria gonorrhoeae ATCC 49226
50-100 good-luxuriant

Pseudomonas aeruginosa ATCC 27853
50-100 good-luxuriant

Staphylococcus aureus ATCC 25923
50-100 good-luxuriant

Enterococcus faecalis ATCC 50-100 good-luxuriant
19433

Streptococcus pneumoniae ATCC 6305
50-100 good-luxuriant
(in Mueller Hinton Blood Broth)

Storage and Shelf Life
Store below 30°C in tightly closed container and use freshly prepared medium. Use before expiry date on the label.

Reference


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