Mucate Broth

Mucate Broth is used for identification of enteropathogenic *Escherichia coli* and *Salmonella* species from milk and milk products.

**Composition**

**Ingredients**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mucic Acid</td>
<td>10.000</td>
</tr>
<tr>
<td>Peptic digest of animal tissue</td>
<td>10.000</td>
</tr>
<tr>
<td>Bromothymol blue</td>
<td>0.024</td>
</tr>
<tr>
<td>Final pH (at 25°C)</td>
<td>7.4±0.1</td>
</tr>
</tbody>
</table>

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

**Directions**

Suspend 20.02 grams in 1000 ml distilled water. Dissolve mucic acid by slowly adding 5 N sodium hydroxide and stirring. Dispense in 5 ml amounts in screw-capped tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 10 minutes.

**Principle And Interpretation**

Mucate Broth is prepared based on the formula originally developed by Kauffman and Petersen (1) and recommended by APHA (2) for identification of enteropathogenic *Escherichia coli* from milk and milk products. This medium can also be used as an aid in differentiation of *Enterobacteriaceae* especially within *Salmonella* genus.

Mucic acid is a saccharolactic acid or also called as tetrahydroxyadipic acid and acts as a carbon source in the medium. It is fermented by enteropathogenic *Escherichia coli*, *Salmonella* Paratyphi B and also by *Klebsiella pneumoniae* to produce acid, which makes the medium yellow as the pH indicator is bromothymol blue (3). Peptic digest of animal tissue supplies the necessary nutrients to the organisms.

Transfer a loopful of 24 hour Tryptone Broth (M463) culture to Mucate Broth. Include Mucate Control Broth tube as a control because occasionally un-inoculated tubes of Mucate Broth turn blue on standing. Incubate at 48 ± 1 hour at 35°C. A negative test result is indicated by a blue or unchanged colour in this broth. 90% of the *E.coli* strains are mucate positive.

**Quality Control**

**Appearance**

Cream to yellow homogeneous free flowing powder

**Colour and Clarity of prepared medium**

Blue coloured clear solution without any precipitate

**Reaction**

Reaction of 2.0% w/v aqueous solution at 25°C. pH : 7.4±0.1

**pH**

7.30-7.50

**Cultural Response**

M1226: Cultural characteristics observed after an incubation at 35-37°C for 24-48 hours.

<table>
<thead>
<tr>
<th>Organism</th>
<th>Inoculum (CFU)</th>
<th>Growth</th>
<th>Colour of medium</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Escherichia coli</em> ATCC 25922</td>
<td>50-100</td>
<td>luxuriant</td>
<td>yellow</td>
</tr>
<tr>
<td><em>Klebsiella pneumoniae</em> ATCC 13883</td>
<td>50-100</td>
<td>luxuriant</td>
<td>yellow</td>
</tr>
<tr>
<td><em>Salmonella paratyphi B</em></td>
<td>50-100</td>
<td>luxuriant</td>
<td>yellow</td>
</tr>
</tbody>
</table>

**Storage and Shelf Life**
Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference