M-FC Basal Medium

**Intended Use:**
Recommended for enumeration of faecal coliform by membrane filtration technique with the addition of fluorogenic and chromogenic supplement.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tryptose</td>
<td>10.000</td>
</tr>
<tr>
<td>Proteose peptone</td>
<td>5.000</td>
</tr>
<tr>
<td>Bile Salts Mixture</td>
<td>1.500</td>
</tr>
<tr>
<td>Yeast extract</td>
<td>3.000</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>5.000</td>
</tr>
<tr>
<td>Agar</td>
<td>15.000</td>
</tr>
<tr>
<td><strong>Final pH (at 25°C)</strong></td>
<td>7.4±0.2</td>
</tr>
</tbody>
</table>

**Directions**
Suspend 39.5 grams in 1000 ml purified / distilled water. Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE. Cool to 45-50°C. Add rehydrated contents of 1 vial of MUG supplement (FD092) or Chromogenic supplement (FD270) or FD092 and FD270 in combination. Mix well and pour into sterile Petri plates.

**Principle And Interpretation**
Coliform bacteria are the members of the *Enterobacteriaceae* and are present in large numbers in faeces and sewage. The presence of coliform bacteria, which grow at 44°C, confirms serious water contamination (2). Membrane filter technique is the most common technique used in the detection of faecal coliforms as recommended by APHA. This medium is formulated in accordance with Ciebin et.al. (1). The chromogenic substrate, 5-bromo-4-chloro-3-indolyl-beta-D-glucuronide (BCIG) in the medium is cleaved by the presence of enzyme ß-glucuronidase in *E.coli* thereby producing blue coloured colonies. The MUG Supplement in the medium is cleaved by the enzyme ß-glucuronidase of *E.coli* to release 4- methylumbelliferone which produces visible blue–green fluorescence under long UV light (3). This medium can be used by addition of either of the two supplements or in combination for the confirmation of *E.coli*.

Tryptose, proteose peptone and yeast extract provides carbon, nitrogen compounds, Vitamin Bcomplex and other essential growth nutrients. Bile salts inhibit gram positive organisms. Sodium chloride maintains osmotic balance.

**Type of specimen**
Water samples

**Specimen Collection and Handling**
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**
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 specimens. Safety guidelines may be referred in individual safety data sheets.

**Limitations**
1. Further biochemical and serological tests must be carried out for further identification.
Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

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

Reaction
Reaction of 3.95% w/v aqueous solution at 25°C. pH : 7.4±0.2

Cultural Response
Cultural characteristics observed with added MUG supplement (FD092) and Chromogenic supplement (FD270) or both in combination, after an incubation at 44-45°C for 24 hours.

<table>
<thead>
<tr>
<th>Organism</th>
<th>Inoculum (CFU)</th>
<th>Growth</th>
<th>Colour of colony</th>
<th>Fluorescence under uv light</th>
</tr>
</thead>
<tbody>
<tr>
<td># Klebsiella aerogenes ATCC 13048 (00175*)</td>
<td>&gt;=10³</td>
<td>inhibited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Escherichia coli ATCC 25922 (00013*)</td>
<td>50-100</td>
<td>good-luxuriant blue</td>
<td>positive</td>
<td></td>
</tr>
<tr>
<td>Enterococcus faecalis ATCC 29221 (00087*)</td>
<td>&gt;=10³</td>
<td>inhibited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staphylococcus aureus subsp. aureus ATCC 25923 (00034*)</td>
<td>&gt;=10³</td>
<td>inhibited</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Disclaimer :
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