



MFC Basal Medium

M1812

MFC Basal Medium is recommended for enumeration of faecal coliform by membrane filter technique with the addition of fluorogenic and chromogenic supplement.

Composition**

Ingredients	Gms / Litre
Tryptose	10.000
Proteose peptone	5.000
Bile Salts Mixture	1.500
Yeast extract	3.000
Sodium chloride	5.000
Agar	15.000
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 39.5 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE. 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 (1). Membrane filter technique is the most common technique used in the detection of faecal coliforms as recommended APHA. This medium is formulated in accordance with Ciebin et.al. (2)

„The chromogenic substrate, 5-bromo-4-chloro-3-indolyl-beta-D-glucuronide (BCIG) in the medium is cleaved by the presence of enzyme β -glucuronidase in *E.coli* thereby producing blue coloured colonies. The MUG Supplement in the medium is cleaved by the enzyme β -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 essential growth nutrients. Bile salts inhibit gram positive organisms. Sodium chloride maintains osmotic balance.

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

M1812: 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.

Organism	Inoculum (CFU)	Growth	Colour of colony	Fluorescence under uv light
Cultural Response				
<i>Enterobacter aerogenes</i> ATCC 13048	$\geq 10^3$	inhibited		
<i>Escherichia coli</i> ATCC 25922	50-100	good-luxuriant	blue	positive
<i>Enterococcus faecalis</i> ATCC 29212	$\geq 10^3$	inhibited		
<i>Staphylococcus aureus</i> ATCC 25923	$\geq 10^3$	inhibited		

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

- 1.Collee J.G., Fraser A.G., Marmion B.P., Simmons A., (Eds) Mackie and McCartney, Practical Medical Microbiology 1996, 14th Edition, Churchill Livingstone.
- 2.Ciebin, Brodsky, Eddington, Horsnell, Choney, Palmateer, Ley, Joshi and Shears. 1995. Appl. Environ. Microbiol.
- 3.Eaton A.D., Clesceri L.S. and Greenberg A.E. (ed.), 1995, Standard methods of examination of Water and Wastewater, 19th Edition., American Public Health Association, Washington,D.C.

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