

m-FC Agar

m-FC Agar is used for the detection of faecal coliforms by the membrane filtration technique.

Mode of Action

In the beginning the faecal coliforms, derived from the intestinal tract of warm-blooded animals, were separated from the non-faecal coliforms by use of elevated temperature tests, which needed confirmatory MPN procedure in addition. GELDREICH et al. published the development of a Faecal Coliform (FC) Medium for the membrane filtration technique using an incubation temperature of $44.5\text{ }^{\circ}\text{C} \pm 0.2\text{ }^{\circ}\text{C}$.

m-FC Agar is supplemented with rosolic acid and incubated at $44.5\text{ }^{\circ}\text{C} \pm 0.2\text{ }^{\circ}\text{C}$ for 24 h.

Peptone and yeast extract serve as nutritious source and bile salts are added to inhibit accompanying Gram-positive flora.

Lactose can be fermented by faecal coliforms at the elevated temperature to form blue colonies on the ready medium (agar base plus rosolic acid), whereas other organisms show grey colonies.

Typical Composition (g/litre)

Proteose peptone 5.0; tryptose 10.0; yeast extract 3.0; sodium chloride 5.0; bile salts 1.5; lactose 12.5; methyl blue (formerly aniline blue) 0.1; agar-agar 15.0.

Preparation

Suspend 52 g in 1 litre of distilled or deionized water and heat to boiling to dissolve completely. Add 10 ml of a 1 % solution of rosolic acid in 0.2 N NaOH. Continue heating for 1 minute with

frequent agitation. Do not autoclave! Cool to $45\text{--}50\text{ }^{\circ}\text{C}$. Dispense 4 ml amounts into Petridishes ($\varnothing$ 50-60 mm) and allow to solidify. Cool to $50\text{ }^{\circ}\text{C}$ and pour plates.

pH: 7.4 ± 0.2 at $25\text{ }^{\circ}\text{C}$.

The plates are clear and blue to violet.

Experimental Procedure

Place membrane filter, through which the sample has been filtered, on the surface of the agar. Avoid formation of air bubbles between the filter and the agar surface.

Incubation: 24 hours at $44.5\text{ }^{\circ}\text{C} \pm 0.2\text{ }^{\circ}\text{C}$ aerobically.

Evaluation

Blue coloured colonies on the membrane filter are counted as faecal coliforms. Other organisms form grey to cream colonies.

Literature

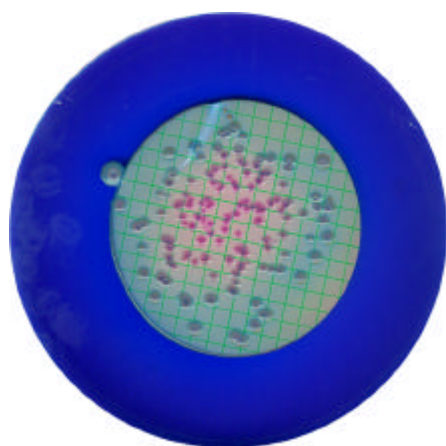
GELDREICH, CLARK, HUFF, a. BERG: - *J. Am. Water Works Assoc.*, **57**; 208 (1965).

Ordering Information

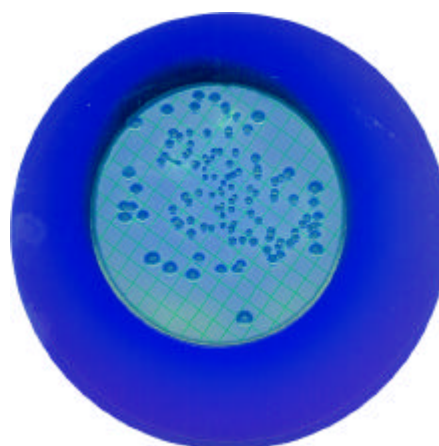
Product	Merck Cat. No.	Pack size
m-FC Agar	1.11278.0500	500 g
0.2 N Sodium hydroxide solution	1.09140.1000	1 l
Rosolic acid	Sigma Chem.	25 g

Quality control

Test strains	Growth at $44.5\text{ }^{\circ}\text{C}$	Colour of colony
<i>Escherichia coli</i> ATCC 25922	good	blue to dark-blue
<i>Salmonella typhimurium</i> ATCC 14028	good	pink to red
<i>Enterobacter cloacae</i> ATCC 13047	good	blue to dark-blue
<i>Enterococcus faecalis</i> ATCC 19433	none	
<i>Enterobacter aerogenes</i> ATCC 13048	good	grey to grey-blue



Enterobacter cloacae
ATCC 13047



Escherichia coli
ATCC 25922