Technical Information

M 7 Hr FC Agar

Product Code: DM 1635

Application: - M 7 Hr FC Agar is used for examination of water and waste water.

Composition**

Ingredients	Gms / Litre
Biopeptone	5.000
Yeast extract	3.000
Lactose	10.000
D-Mannitol	5.000
Sodium chloride	7.500
Sodium lauryl sulphate	0.200
Sodium deoxycholate	0.100
Bromo cresol purple	0.350
Phenol red	0.300
Agar	15.000
Final pH (at 25°C)	7.3±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

M7 Hr FC Agar is a modified method of Van Donsel et al (1) and Reasoner et al (2), which is used by APHA (3) for the examination of water and wastewater for the presence of faecal coliforms by the membrane filter technique. This medium has an advantage over other media to yield results in 7 hours that are generally comparable to those obtained by the standard coliform method. Thus this medium is accepted for assessment of the sanitary quality of water during emergencies involving water treatment plant failure or line breaks in a distribution network. It is reliable and has sensitivity levels equal to those of the standard tests routinely used.

Bio peptone and yeast extract supply nutritional requirement to a wide variety of organisms. Lactose and mannitol acts as energy sources and sodium chloride maintains osmotic equilibrium of the medium. Sodium lauryl sulphate and sodium deoxycholate help to restrict the gram-positive and gram-negative bacterial flora present in water. Bromocresol purple and phenol red help as indicators in the detection of organisms. This is a solid culture medium for the rapid detection of faecal coliforms by membrane filtration method.

After filtering a suitable or desired volume of water, the membrane is placed on the surface of plate and then incubated at 41.5°C for 7 hours. Faecal coliform form yellow colonies, indicating lactose fermentation.

MF technique has certain limitations, particularly when testing waters with high turbidity or non-coliform (background) bacteria. For such waters or when the membrane filter technique has not been used previously, it is desirable to carry out parallel tests with the multiple tube fermentation technique to determine applicability and comparability.

Methodology

Suspend 46.45 grams of dehydrated media in 1000 ml distilled water. Mix thoroughly & heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE. Shake well before pour into sterile Petri plates.

Quality Control

Appearance
Beige to purple homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity
Dark pinkish purple coloured clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 4.64% w/v aqueous solution at 25°C. pH : 7.3±0.2

pH Range
7.10-7.50

Cultural Response
DM 1635: Cultural characteristics observed after an incubation at 41.5°C for 7-18 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of Colony
Escherichia coli ATCC 25922	50-100	luxuriant	>=50%	yellow
Staphylococcus aureus ATCC 25923	>=10^3	inhibited	0%	
Enterococcus faecalis ATCC 29212	>=10^3	inhibited	0%	

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.
Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Van Donsel D. J., Twedt R. M. and Geldrich E. E., 1969, Bacteriol.Proc. Abs. No. G46; p. 25.
2. Reasoner, D.J., Blannon J. C. and Geldrich E. B., 1979, Appl. Environ. Microbiol., 38:229.
3. Eaton A. D., Clesceri L. S., Rice E. W. and Greenberg A. W., (Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st Ed., APHA, Washington, D.C.

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