M-FC Agar Base

M1122

Intended Use:

Recommended for detection and enumeration of faecal coliforms using membrane filtration technique at higher temperature (44.5°C).

Composition**

Ingredients	Gms / Litre
Tryptose	10.000
Proteose peptone	5.000
Yeast extract	3.000
Lactose	12.500
Bile salts mixture	1.500
Sodium chloride	5.000
Aniline blue	0.100
Agar	15.000
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 52.1 grams in 1000 ml purified / distilled water containing 10 ml 1% Rosolic Acid (FD058). Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Principle And Interpretation

M-FC Agar Base, designed by Geldreich et al (2) is used for the detection and enumeration of faecal coliforms using the membrane filter technique. This medium is based on the property of faecal coliforms to grow at 44-45°C (1). M-FC Agar Base is recommended by APHA (3) and by various other standards for detection of faecal coliforms (4-6). APHA recommends the membrane filtration procedure and delayed incubation for faecal coliforms.

Proteose peptone, tryptose and yeast extract provide necessary nutrients for the growth of faecal coliforms. Lactose is the carbon source as well as fermentable carbohydrate in the medium. Bile salts inhibit the growth of contaminating gram-positive microorganisms. Aniline blue is a triphenyl methane dye which suppresses the growth of many gram-positive microorganisms. Aniline blue along with rosolic acid forms the indicator system of the medium.

Membrane filters, through which water sample is passed are aseptically placed onto M-FC Agar base plates. If total coliforms are to be estimated, incubation is carried out at 35-37°C whereas if faecal coliform count is to be estimated, incubation is done at 44-45°C. Coliforms will form blue colonies whereas non-coliforms will form gray coloured colonies on M-FC Agar Base.

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. Due to nutritional variations certain strains may show poor growth.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Light yellow to greyish yellow, may have slight green or blue tinge homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

After Addition of 1% Rosolic Acid : Red coloured slightly opalescent gel forms in Petri plates

Reaction

Reaction of 5.21% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH

7.20-7.60

Cultural Response

Cultural characteristics observed with added 1% Rosolic Acid (FD058) after an incubation at different temperatures for 22-24 hours.

Organism	Inoculum (CFU)	Growth at 35-37°C	Growth at 45.5°C	Colour of colony (on membrane filter)
Enterococcus faecalis ATCC 29212 (00087*)	>=10^4	inhibited	inhibited	
Escherichia coli ATCC 25922 (00013*)	50-100	luxuriant	luxuriant	light blue
Salmonella Typhimurium *ATCC 14028* (00031*)	50-100	luxuriant	inhibited	pinkish
Shigella flexneri ATCC 12022 (00126*)	50-100	luxuriant	inhibited	pinkish

Key : *Corresponding WDCM numbers.

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. Geldreich E. E., Clark H. F., Huff E. E. and Bert M., 1965, J. Am. Water Works Assoc., 57:208.
3. Eaton A. D., Clesceri L. S. and Greenberg A. W., (Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st Ed., APHA, Washington, D.C.
4. Official Methods of Analysis of AOAC International, 2000, 17th Ed., AOAC International, Gaithersburg, Md.
5. U.S. Environmental Protection Agency, 1992, EPA-814B-92-2002, Office of Ground Water and Technical Support Division, USEPA, Cincinnati, Ohio.
6. Bordner R. H., Winter J. A. and Scarpino P. V. (Eds.), 1978, EPA-600/8-78-017, Environmental Monitoring and Support Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, Ohio.

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