

Technical Information

M-FC Broth Base

Product Code: DM 2111

Application: - M-FC Broth Base is used for the detection and enumeration of faecal coliforms using membrane filter 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
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

M-FC Broth 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 Broth 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 supply necessary nutrients for the growth of faecal coliforms. Lactose acts as the carbon source as well as fermentable carbohydrate in the medium. Bile salts prevent 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.

Sterile cotton absorbent cotton pads are saturated with M-FC Broth Base by addition of 2 ml medium. Membrane filters, through which water sample is passed, are aseptically placed onto sterile cotton absorbent cotton pads saturated with M-FC Broth Base. 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 Broth Base.

Methodology

Suspend 37.1 grams of dehydrated powder media in 1000 ml distilled water containing 10 ml 1% Rosolic Acid (MS 2058). Mix thoroughly & heat to boil to dissolve the medium completely. DO NOT AUTOCLAVE. Cool to 45°C and add 2 ml of M-FC Broth on sterile absorbent pad placed in a sterile Petri plate

Quality Control

Appearance

Light yellow to bluish grey homogeneous free flowing powder

Colour and Clarity

After Addition of 1% Rosolic Acid : Red coloured clear to slightly opalescent solution in tubes

Reaction

Reaction of 3.71% w/v aqueous solution at 25°C. pH : 7.4±0.2



Dehydrated Culture Media
Bases / Media Supplements

pH Range

7.20-7.60

Cultural Response

DM 2111: Cultural characteristics observed with added Rosolic acid (MS 2058) 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)
<i>Enterococcus faecalis</i> ATCC 29212	>=10 ³	inhibited	inhibited	-
<i>Escherichia coli</i> ATCC 25922	50-100	luxuriant	luxuriant	light blue
<i>Salmonella Typhimurium</i> ATCC 14028	50-100	luxuriant	inhibited	pinkish
<i>Shigella flexneri</i> ATCC 12022	50-100	luxuriant	inhibited	pinkish

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use freshly prepared medium. Use before expiry date on the label.

Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

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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