m FC AGAR

INTENDED USE

m FC Agar is used with Rosolic Acid in cultivating and enumerating fecal coliforms by the membrane filter technique at elevated temperatures.

SUMMARY AND EXPLANATION

Geldreich et al.[1] formulated a medium to enumerate fecal coliforms (MFC) using the membrane filter (MF) technique without prior enrichment. Fecal coliforms (i.e., those found in the feces of warm-blooded animals) are differentiated from coliforms from environmental sources by their ability to grow at 44.5 ± 0.5°C.[2]

Many "standard methods" membrane filtration procedures specify m FC medium for testing water.[2-4] The American Public Health Association (APHA) specifies m FC medium and incubation at 44.5 ± 0.5°C in the fecal coliform membrane filter procedure, the delayed-incubation fecal coliform procedure and the two-layer agar method for recovering injured fecal coliforms.[2] AOAC International specifies m FC Agar for detecting total coliforms and fecal coliforms in foods.[3]

The U. S. Environmental Protection Agency specifies using m FC medium in fecal coliform methods for testing water by the direct MF method or the delayed-incubation MF method.[4,5]

PRINCIPLE

m FC Agar and m FC Broth Base contain peptones as sources of carbon, nitrogen, vitamins and minerals. Yeast extract supplies B-complex vitamins that stimulate bacterial growth. Lactose is a carbohydrate. Bile Salts No. 3 inhibits growth of gram-positive bacteria. m FC Agar contains agar as the solidifying agent. The differential indicator system combines aniline blue and rosolic acid.

Colonies of fecal coliforms are blue; non-fecal coliforms and other organisms are gray to cream-colored.

REAGENTS (FORMULA)

Tryptose	10.0	g
Proteose Peptone No. 3	5.0	g
Yeast Extract	3.0	g
Lactose	12.5	g
Bile Salts No. 3	1.5	g
Sodium Chloride	5.0	g
Aniline Blue	0.1	g
Agar	15.0	g
Deionized Water	1000.0	ml

PROCEDURE

1. Prepare the agar medium from the dehydrated base according to the label directions and with the addition of the Rosolic Acid solution.

2. Pour molten agar, previously cooled to 45-50°C into special tight-fitting plastic dishes and allow to harden.

3. Roll the membrane filter used to collect the water sample onto the surface of the agar, so as to avoid the formation of air bubbles between the filter and the agar surface.

4. Place the dishes in plastic bags and incubate, by immersion, in a water bath at 44.5 ± 0.2°C for 24 ± 2 hours.

EXPECTED RESULTS

Colonies of fecal coliforms will be various shades of blue. Non-fecal coliforms are gray to cream-colored.

QUALITY CONTROL

All lot numbers have been tested and have been found to be acceptable. Customers can test products using the following quality control organisms. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, sample results should not be reported.

Organisms	Incubation	Results
Escherichia coli ATCC 25922	44.5 ± 0.5°C for 24± 2 hours	Growth, Blue
Enterococcus faecalis ATCC 19433	44.5 ± 0.5°C for 24± 2 hours	Complete Inhibition

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BIBLIOGRAPHY

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5. Bordner, Winter and Scarpino (ed.). 1978. Microbiological methods for monitoring the environment: water and wastes. Publication EPA-600/8-78-017. Environmental Monitoring and Support Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, Ohio.

CBSA*life*

155-196 Innovation Drive, Winnipeg, MB, R3T 2N2, Canada

Phone: +1 (204) 269-2255 Email: info@cbsalife.com Website: https://cbsalife.com