m-FC BROTH (7396)

Intended Use
m-FC Broth is used with rosolic acid for the detection and enumeration of fecal coliforms by membrane filtration.

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

Many standard method membrane filtration procedures recommend m-FC media for testing water. The American Public Health Association (APHA) specified m-FC media and incubation at 44.5 ± 0.5°C in several procedures.[2,3] The US Environmental Protection Agency specified using m-FC media in fecal coliform methods for testing water by the direct MF method or the delayed-incubation MF methods.[4,5]

Principles of the Procedure
Enzymatic Digest of Casein and Enzymatic Digest of Animal Tissue provide nitrogen, carbon, and minerals in m-FC Broth. Yeast Extract is a source of vitamins and trace elements. Sodium Chloride maintains the osmotic balance. Lactose serves as a carbohydrate source. Bile Salts inhibit growth of Gram-positive bacteria. The differential indicator system combines Aniline Blue and Rosolic Acid, which is added as a supplement.

Formula / Liter
Enzymatic Digest of Casein	10.0 g
Enzymatic Digest of Animal Tissue	5.0 g
Yeast Extract	3.0 g
Sodium Chloride	5.0 g
Lactose	12.5 g
Bile Salts	1.5 g
Aniline Blue	0.1 g

Final pH: 7.4 ± 0.2 at 25°C
Formula may be adjusted and/or supplemented as required to meet performance specifications.

Supplement
1% Rosolic Acid, 1 mL

Precautions
1. For Laboratory Use.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions
m-FC Broth
1. Dissolve 3.7 g of the medium in 100 mL of purified water containing 1 mL of 1% rosolic acid in 0.2 N NaOH.
2. If necessary, adjust pH to 7.4 with 1N HCl.
3. Heat with frequent agitation to boiling to completely dissolve the medium.
4. Cool to room temperature.

Rosolic Acid
1. Dissolve 1 g in 100 mL of 0.2 N NaOH to prepare a 1% solution.

Quality Control Specifications
Dehydrated Appearance: Powder is homogeneous, free flowing, and bluish-beige to gray-blue.

Prepared Appearance: Prepared unsupplemented medium is purple to blue-purple and clear to slightly hazy. Supplemented with 1% Rosolic Acid, medium is purple to red-purple to cranberry red.

Expected Cultural Response: Cultural response in m-FC Broth incubated at 44.5°C and examined for growth after 22 - 24 hours.

Microorganism	Approx. Inoculum (CFU)	Expected Results
Escherichia coli ATCC® 11775	10 - 300	Growth, blue colonies
Escherichia coli ATCC® 25922	10 - 300	Growth, blue colonies
Salmonella typhimurium ATCC® 14028	10 - 300	Growth, colorless to reddish-gray colonies
Staphylococcus aureus ATCC® 25923	1000	Inhibited

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure
Refer to appropriate references for procedures using m-FC Broth.

Results
Following incubation, examine membrane filters for presence of colored colonies. Blue colonies are counted as fecal coliforms. Other organisms, non-fecal coliforms, form grey to cream colonies.

Storage
Store sealed bottle containing the dehydrated medium at 2 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

Expiration
Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if medium has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitation of the Procedure
Due to varying nutritional requirements, some strains may be encountered that grow poorly or fail to grow on this medium.

Packaging

m-FC Broth	**Code No.**	**7396A**	**500 g**
		7396B	**2 kg**
		7396C	**10 kg**

References

1. **Geldreich, E. E., H. F. Clark, C. B. Huff, and L. C. Best.** 1965. Fecal-coliform-organism medium for the membrane filter technique. J. Am. Water Works Assoc. **57:**208-214.
2. **Eaton, A. D., L. S. Clesceri, and A. E. Greenberg (eds.).** 1999. Standard methods for the examination of water and wastewater, 19th ed. American Public Health Association, Washington, D.C.
3. **Cowman, S., and R. Kelsey.** 1992. Bottled water, p. 1031-1036. *In* C. Vanderzant, and D. F. Splittstoesser (eds.). Compendium of methods for the microbiological examination of foods, 3rd ed. American Public Health Association, Washington, D.C.
4. **Bordner, R., and J. Winter (eds.).** 1978. Microbiological methods for monitoring the environment. EPA-600/8-78-017. Environmental Monitoring and Support Laboratory, Office of Research and Development, U. S. Environmental Protection Agency, Cincinnati, OH.
5. **Environmental Protection Agency.** 1992. Manual for the certification of laboratories analyzing drinking water. EPA-814B-92-002. Office of Ground Water and Technical Support Division, U. S. Environmental Protection Agency, Cincinnati, OH.

Technical Information
Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.

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