EC MEDIUM, MODIFIED (7506)

Intended Use

EC Medium, Modified is used with novobiocin for the selective pre-enrichment of *Escherichia coli* O157:H7.

Product Summary and Explanation

EC Medium was developed by Hajna and Perry[1] in an effort to improve the methods for the detection of the coliform group and *E. coli*. This medium consists of a buffered lactose broth with the addition of 0.15% Bile Salts Mixture. Growth of spore-forming bacteria and fecal streptococci were inhibited by the bile salts. EC Medium, Modified with the addition of novobiocin was first described by Okrend and Rose.[2] Okrend and Rose modified EC Medium by reducing the Bile Salts Mixture concentration to 1.12% and adding 20 mg/L of sodium novobiocin. Okrend and Rose et al. reported this formulation, which they called Modified EC & Novobiocin (mEC&N), was beneficial in the enrichment and detection of *E. coli* O157:H7 from meats and poultry, and is currently recommended by the U.S.D.A.[3-5]

Principles of the Procedure

Enzymatic Digest of Casein provides nitrogen, vitamins and amino acids in EC Medium, Modified. Lactose is the carbon source. Bile Salts Mixture is a selective agent used to inhibit some gram-positive cocci and sporeformers. Novobiocin is added as a supplement to suppress the growth of nuisance organisms commonly found in food. Dipotassium Phosphate and Monopotassium Phosphate are the buffering agents. Sodium Chloride maintains the osmotic balance of the medium.

Formula / Liter

Enzymatic Digest of Casein	20 g
Lactose	5 g
Bile Salts Mixture	1.12 g
Dipotassium Phosphate	4 g
Monopotassium Phosphate	1.5 g
Sodium Chloride	5 g

Final pH: 6.9 ± 0.2 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

Antimicrobic / 10 mL

Novobiocin, 20 mg, filter sterilized aqueous solution

Precautions

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

Directions

1. Dissolve 36.6 g of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.
4. Cool to room temperature and add 10 mL of a filter sterilized aqueous solution containing 20 mg of novobiocin.
5. Dispense aseptically into sterile tubes containing an inverted fermentation Durham tube.

Quality Control Specifications

Dehydrated Appearance: Powder is homogeneous, free flowing, and very light beige.

Prepared Appearance: Prepared medium is clear to trace hazy and yellow gold to amber.

Expected Cultural Response: Cultural response in EC Medium, Modified at 35 ± 0.2°C after 24 hours incubation.

Microorganism	Response	Reaction (Gas)
Enterococcus faecalis ATCC® 29212	inhibited	----
Escherichia coli ATCC® 35150	good growth	positive
Escherichia coli ATCC® 43894	good growth	positive
Escherichia coli ATCC® 43895	good growth	positive
Pseudomonas aeruginosa ATCC® 27853	partial – complete inhibition	----

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

Test Procedure

Refer to appropriate references for specific procedures on the samples being tested with EC Medium, Modified.

Results

All presumptive positive isolates should be further tested through biochemical and serologic procedures to confirm the presence of *E. coli* O157:H7.

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 the appearance 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

EC Medium, Modified	**Code No.**	**7506A**	**500 g**
		7506B	**2 kg**
		7506C	**10 kg**

References

1. **Hajna and Perry.** 1943. Am J. Public Health. **33:**550.
2. **Okrend, A. J. G., and B. E. Rose.** 1989. USDA Communication No. 38, rev. 4. USDA, Washington, D. C.
3. **Okrend, A. J. G., B. E. Rose, and B. Bennett.** 1990. J. Food Prot. **53:**249-252.
4. **Okrend, A. J. G., B. E. Rose, and C. P. Lattuada.** 1990. J. Food Prot. **53:**941-943.
5. **Okrend, A. J. G., B. E. Rose, and R. Matner.** 1990. J. Food Prot. **53:**936-940.

Technical Information

Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (410)780-5120 or fax us at (410)780-5470.