EC MEDIUM, MODIFIED with NOVOBIOCIN (7700)

Intended Use
EC Medium, Modified with Novobiocin is used for the selective 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. EC Medium, Modified with Novobiocin 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 with Novobiocin. Lactose is the carbon source. Bile Salts is a selective agent used to inhibit some Gram-positive cocci and sporeformers. Novobiocin is added 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 ..... 20.0 g
Lactose ..... 5.0 g
Sodium Chloride ..... 5.0 g
Dipotassium Phosphate ..... 4.0 g
Monopotassium Phosphate ..... 1.5 g
Bile Salts ..... 1.12 g
Novobiocin ..... 0.020 g
Final pH: 6.9 ± 0.2 at 25°C
Formula may be adjusted and/or supplemented as required to meet performance specifications.

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

Directions
1. Dissolve 36.7 g of the medium in one liter of purified water.
2. Autoclave at 121°C for 15 minutes.

Quality Control Specifications
Dehydrated Appearance: Powder is homogeneous, free flowing, and very light to light beige.

Prepared Appearance: Prepared medium is brilliant to clear, yellow gold to amber, and contains none to light precipitate.

Expected Cultural Response: Cultures were incubated aerobically at 35 ± 2°C and examined for growth after 18 – 24 hours. Cultures were then streaked onto MacConkey Agar with Sorbitol (# 7320), incubated at 35 ± 2°C, and examined for Sorbitol reaction at 18 – 24 hours.

Microorganism	Approx. Inoculum (CFU)	Expected Results	
		Growth	SMAC
Escherichia coli O157:H7 ATCC® 35150	10 - 300	Good to excellent growth	Colorless colonies are Sorbitol negative
Escherichia coli ATCC® 25922	10 - 300	None to fair growth	Pink colonies are Sorbitol positive
Proteus vulgaris ATCC® 13315	10 - 300	Suppressed	Pinpoint; colorless to no growth
Staphylococcus aureus ATCC® 25923	10 - 300	Inhibited	---

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 with Novobiocin.

Results
After 18-24 incubation, examine EC Medium, Modified with Novobiocin for growth. Proceed with appropriate test procedure. 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.

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 with Novobiocin	**Code No.**	**7700A**	**500 g**
	7700B	**2 kg**	
	7700C	**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 (517)372-9200 or fax us at (517)372-2006.

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