EC Medium, Modified w/Novobiocin
SKU: 700003616, 700003617, 700003618, 700003619
NCM0271

Intended Use

EC Medium, Modified with Novobiocin is used for the selective enrichment of *Escherichia coli* O157:H7 in a laboratory setting. EC Medium, Modified with Novobiocin is not intended for use in the diagnosis of disease or other conditions in humans.

Description

EC Medium was developed by Hajna and Perry 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. 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.

Typical Formulation

Enzymatic Digest of Casein	20.0 g/L
Lactose	5.0 g/L
Sodium Chloride	5.0 g/L
Dipotassium Phosphate	4.0 g/L
Monopotassium Phosphate	1.5 g/L
Bile Salts	1.12 g/L
Novobiocin	0.020 g/L

Final pH: 6.9 ± 0.2 at 25°C
Formula is adjusted and/or supplemented as required to meet performance specifications.

Precaution

Refer to SDS

Preparation

1. Dissolve 36.7 g of the medium in one liter of purified water.
2. Mix thoroughly.
3. 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 (NCM0167 or 400000857), 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.

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.

Storage

Store dehydrated culture media at 2-30°C away from direct sunlight. 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.

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.

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