



EC 0157:H7 Selective Broth (Twin Pack)

M2044

Intended Use:

EC 0157:H7 Selective Broth is recommended for the isolation of *Escherichia coli* O157:H7 from food samples.

Composition**

Ingredients	Gms / Litre
Part A	-
Proteose peptone	5.000
Yeast extract	3.000
D-Mannitol	2.500
Sodium pyruvate	2.500
Potassium monophosphate	1.500
Sodium phosphate dibasic	3.500
Sodium chloride	5.000
Magnesium sulphate, anhydrous	0.300
Ferrous sulphate green, ACS	0.040
Sodium thioglycollate	0.100
Part B	-
Niaproof 4	1.000
Tween 80	0.750

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 23.44 grams of Part A in 1000 ml distilled water with 1.75 ml of Part B. Heat if necessary to dissolve the medium completely. DO NOT AUTOCLAVE. Cool to 45-50°C. Dispense into sterile tubes or flasks as desired.

Principle And Interpretation

Enterohaemorrhagic *E.coli* strains are also termed as verocytotoxin-producing *E.coli* (VTEC/ EHEC). Although many different serotypes of *Escherichia coli* are known to produce verocytotoxin (1) those of *Escherichia coli* O157:H7 and O157:H are so far the common types causing human infections. O157 VTEC strains have several unusual biochemical characters that are exploited in methods for their laboratory identification. Enterohaemorrhagic *E.coli* (EHEC) can cause severe foodborne disease. EHEC is the primary cause of hemorrhagic colitis. This infection can also lead to hemolytic uremic syndrome (2). It is transmitted to humans primarily through consumption of contaminated foods, such as raw or undercooked ground meat products and raw milk. Its significance as a public health problem was recognized in 1982, following an outbreak in the United States of America. EHEC produces toxins, known as verotoxins or Shiga-like toxins because of their similarity to the toxins produced by *Shigella dysenteriae* (3).

The media Proteose peptone and yeast extract as carbon and nitrogen sources, long chain amino acids, vitamins and minerals. Phosphates buffer the medium. Magnesium sulphate and ferrous sulphate are sources of ions that simulate metabolism. Sodium chloride maintains the osmotic balance. Mannitol serves as a carbon source.

Type of specimen

Food

Specimen Collection and Handling

For food samples, follow appropriate techniques for sample collection and processing as per guidelines (4). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations

1. Due to nutritional variation some organisms may show poor growth.
2. Further biochemical and serological test must be carried out for confirmation.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Part A: Cream to yellow homogeneous free flowing powder Part B: Pale yellow to yellow viscous solution

Colour and Clarity of prepared medium

Yellow coloured, opalescent solution with slight precipitate

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Cultural Response

Organism	Inoculum (CFU)	Growth
Cultural Response		
<i>Escherichia coli</i> O157:H7 NCTC 12900	50-100	good
<i>Staphylococcus aureus</i> ATCC 25923 (00034*)	$\geq 10^3$	inhibited
<i>Salmonella</i> Typhimurium ATCC 14028 (00031*)	50-100	good
<i>Enterococcus faecalis</i> ATCC 29212 (00087*)	$\geq 10^3$	inhibited
<i>Escherichia coli</i> ATCC 25922 (00013*)	50-100	good

Key : *Corresponding WDCM numbers.

Storage and Shelf Life

Store below 30°C in a tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (5, 6).

Reference

1. Smith and Scotland, 1988, J. Med. Microbiol., 26:77-85.
2. www.fda.gov/Food/ScienceResearch/LaboratoryMethods/BacteriologicalAnalyticalmanualBAM/default.htm
3. www.who.int/mediacentre/factsheets/fs125/en/
4. Downes F. P. and Ito K. (Ed.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th ed., APHA, Washington, D.C.

5. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
6. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock, D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

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