

Technical Data

E.coli O157 MUG Identification

Agar Intended Use:

Recommended for identification of Escherichia coli O157:H7.

Composition**

Ingredients	Gms / Litre
Casitose 🔺	7.500
HM peptone #	2.500
L-Tryptophan	0.500
Phenol red	0.025
Sodium chloride	5.000
Lactose	1.000
4-Methylumbelliferyl b-D-glucuronide(MUG)	0.020
Agar	14.000
Final pH (at 25°C)	7.4±0.2
**Formula adjusted standardized to suit performance paren	nators

**Formula adjusted, standardized to suit performance parameters

▲ - Equivalent to Casein peptone

- Equivalent to Meat peptone

Directions

Suspend 30.55 grams in 1000 ml purified / distilled water. Heat to boiling to dissolve the medium completely. DO NOT AUTOCLAVE. Mix well and pour into sterile Petri plates.

Principle And Interpretation

E.coli O157 MUG Identification Agar is recommended (5) for isolation and identification of *E. coli* O157:H7.The strains produce toxins, which can result in life threatening extra intestinal complications in the form of the hemolytic uremic syndrome and thrombotic-thrombocytopenic purpura. Due to severe clinical implications, the isolation and detection of *E.coli* O157:H7 strains are of importance.

Casitose, HM peptone provides essential nutrients. Lactose provides carbon and energy source. Phenol red is the pH indicator. Microorganisms utilizing lactose exhibit yellow colonies whereas lactose-negative strains (such as *E.coli* O157:H7) grow as pink colonies. 4-Methylumbelliferyl β -D-glucuronide (MUG) is converted into 4-methylumbelliferone by β -D-glucuronidase-forming pathogens. 4-methylumbelliferone fluoresces under UV light. All commensal *E.coli* produce β -glucuronidase. *E.coli* O157:H7 is not capable of forming β -glucuronidase, thus when exposed under long-wave UV light, no fluorescence is observed. The plates can be exposed to ammonia fumes to increase fluorescence as suggested by Freir and Hartman (1).

Type of specimen

Food samples.

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. This medium is general purpose medium and may not support the growth of fastidious organisms.

- 2. Further biochemical and serological tests must be carried out for further identification.
- 3. Some organism may show poor growth due to nutritional variation.

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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

Light yellow to pink homogeneous free flowing powder

Gelling

Firm, comparable with 1.4% Agar gel.

Colour and Clarity of prepared medium

Red coloured, clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 3.05% w/v aqueous solution at 25°C. pH : 7.4±0.2

pН

7.20-7.60

Cultural Response

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

Organism	Inoculum (CFU)	Growth	Recovery	Fluorescence (under UV)	Colour of colony
Enterobacter aerogenes ATCC 13048 (00175*)	50-100	luxuriant	>=50%	negative	pink
Escherichia coli O157:H7	50-100	luxuriant	>=50%	negative	pink
Escherichia coli ATCC	50-100	luxuriant	>=50%	positive	pink
25922 (00013*)					

Key: *Corresponding WDCM numbers.

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°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 sample must be decontaminated and disposed of in accordance with current laboratory techniques (2,3).

Reference

1. Freir T.A. and Hartman P.A. (1987) Appl. Env. Microbiol. 53. 1246-1250

2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.

3. 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.

4. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.

5. Szabo R. A., Todd E. C., Jean A., 1986, J. Food Prot., 10:768-772.

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Disclaimer :

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