



E.coli O157 MUG Identification Agar

M1978

E.coli O157 MUG Identification Agar is recommended for identification of *Escherichia coli* O157:H7.

Composition**

Ingredients	Gms / Litre
Casein peptone	7.500
Meat 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 parameters

Directions

Suspend 30.55 grams in 1000 ml 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 (1) 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.

Casein peptone, Meat 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 (2).

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

pH

7.20-7.60

Cultural Response

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

Cultural Response

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

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference

- 1.Szabo R. A., Todd E. C., Jean A., 1986, J. Food Prot., 10:768-772.
- 2.Freir T.A. and Hartman P.A. (1987) Appl. Env. Microbiol. 53. 1246-1250

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