EC with MUG Fluorogenic Broth

Cat. 1285

For quick detection of Escherichia coli in water, food, milk and other appliactions.

Practical information

Aplications	Categories
Selective isolation	Coliforms
Selective isolation	Escherichia coli
Detection	Coliforms
Detection	Escherichia coli

Industry: Water

Principles and uses

EC with MUG Fluorogenic Broth is a medium recommended for the detection of E. coli using the membrane filtration technique.

Faecal contamination of water is a serious problem due to the possibility of contracting diseases from pathogens (disease-causing organisms). This medium allows a better detection of coliform organisms, in particular of E. coli, and is used to investigate drinking water, wastewater treatment systems and generally for water-quality monitoring, as well as shellfish and other foods.

The medium can be incubated at 35±2 ºC for the detection of coliform organisms or at 44,5 ºC for the isolation of E. coli.

The bile salts act as selective agent inhibiting Gram-positive bacteria, bacilli and enterococci but allowing E. coli to develop. The potassium salts have a high buffering capacity. Tryptose provides the nutrients for growth and lactose is the fermentable carbohydrate as carbon and energy source. Sodium chloride maintains the osmotic balance.

E. coli contauns the enzyme ß-D-glucuronidase that hydrolyzes MUG to yield a fluorogenic product that is detectable under long-wave (366 nm) UV light. The addition of MUG to EC Broth provides another criterion, in addition to growth response and gas production, to determine the presence of E. coli in food and environmental samples.

Formula in g/L

Bile salts N° 3	1,9	Dipotassium phosphate	4
Lactose	5	Monopotassium phosphate	1,5
Sodium chloride	5	Tryptose	20
MUG (4-methylumbelliferyl-ß-D-glucuronide)	0,1		

Preparation

Suspend 37,5 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. DO NOT AUTOCLAVE. Dispense into appropriate containers with Durham bells to test the lactose fermentation.

Instructions for use

Inoculate and incubate at a temperature of 37±2 ºC and observe after 24-48 hours under UV light.

Quality control

Solubility	Appareance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25ºC)
w/o rests	Fine powder	Beige	Amber	6,9±0,2

Microbiological test

Incubation conditions: (37±2 ºC / 24-48 h).

Microorganisms	Specification	Characteristic reaction
Enterococcus faecalis ATCC 19433	Partially inhibited	Fluorescence (-), Gas (+)
Escherichia coli ATCC 25922	Good growth	Fluorescence (+), Gas (+)
Citrobacter freundii ATCC 43864	Good growth	Fluorescence (-), Gas (+)

Storage

Temp. Min.:2 ºC
Temp. Max.:8 ºC

Bibliography

Hajna and Perry 1944 A.P.H.A.
APHA (1985) Standard Methods for Examination of Water and Wastewater, 16th Ed., pp 878-882.
APHA (1985) Compendium of Methods for the Microbiological Examination of Foods, 2nd Ed.
ISO 7251 Microbiology- General Guidance for enumeration of presumptive E. coli- Most Probable Number Technique. 2nd Ed. 1993-12-15.