



EC Blue Broth

M1768

EC Blue Broth is recommended for detection and confirmation of *Escherichia coli* and total coliforms from water samples, using a combination of chromogenic and fluorogenic substrates.

Composition**

Ingredients	Gms / Litre
Peptone	5.000
Sodium chloride	5.000
Sodium pyruvate	1.000
Potassium dihydrogen phosphate	1.000
Dipotassium hydrogen phosphate	4.000
Potassium nitrate	1.000
Sodium lauryl sulphate	0.100
IPTG	0.100
X-Gal	0.100
MUG	0.100
Final pH (at 25°C)	7.1±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 17.40 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and dispense as desired.

Principle And Interpretation

EC Blue Broth was designed for detection and confirmation of *Escherichia coli* and other coliforms. *Escherichia coli* can be distinguished from other coliforms by its unique ability to fluoresce in the presence of fluorogenic substrate (1, 2). The fluorogenic substrate, MUG is split by enzyme beta glucuronidase especially present in *Escherichia coli*. The reaction is indicated by the development of a blue fluorescence under UV light. The presence of total coliforms is indicated by blue-green colourations due to the cleavage of the chromogenic substrate (X-Gal). IPTG amplifies enzyme synthesis and increases the activity of beta -galactosidase.

Peptone provides essential growth nutrients and is useful for the simultaneous detection of indole production. The phosphate salts provide buffering action for rapid growth of coliforms. Sodium chloride helps to maintain the osmotic balance. Sodium lauryl sulphate makes the medium selective by inhibiting accompanying microflora, especially the gram-positive organisms.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Cream coloured clear solution having slight precipitate in tubes

Reaction

Reaction of 1.74 % w/v aqueous solution at 25°C. pH : 7.1±0.2

pH

6.90-7.30

Cultural Response

M1768: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Colour change in medium	Fluorescence under UV light
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Cultural Response

<i>Escherichia coli</i> ATCC 25922	50-100	luxuriant	Bluish green	positive reaction
<i>Klebsiella pneumoniae</i> ATCC 13883	50-100	luxuriant	blue	negative reaction
<i>Enterobacter aerogenes</i> ATCC 13048	50-100	luxuriant	blue	negative reaction
<i>Citrobacter freundii</i> ATCC 8090	50-100	luxuriant	Bluish green	negative reaction
<i>Salmonella Typhimurium</i> ATCC 14028	50-100	luxuriant	colourless	negative reaction

Storage and Shelf Life

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

Reference

- 1.Feng P.C.S. and Hartman P.A. ,1982, J.Appl. Environmental Microbiol. 43. 1320-1323.
- 2.Harsen W., and Yourassowsky, 1984, J.Clin. Microbiol.20.1177-1179.

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