

Also known as

EC Broth

Specification

Selective medium for the detection and enumeration (MPN) of enterobacteria, in water and foodstuffs according to ISO standards.

Formula * in g/L

Peptone.....	20.0
Bile Salts No. 3.....	1.5
Lactose.....	5.0
Dipotassium phosphate.....	4.0
Potassium dihydrogen phosphate.....	1.5
Sodium chloride.....	5.0

Final pH 6,9 ±0,2 at 25 °C

* Adjusted and /or supplemented as required to meet performance criteria

Directions

Dissolve 37 g of powder in 1 L of distilled water. Distribute into tubes or containers with inverted Durham tubes (to detect gas production). Sterilize at 121°C for 15 minutes.

Description

EC Broth is a buffered medium containing lactose. It is part of a range of selective broths for Enterobacteriaceae. Its efficiency or selectivity is based on bile salts' inhibitory effect on other microorganisms.

This broth may be used for routine testing of water and food, either alone or by using the Most Probable Number method of enumeration.

The type of sample will determine how precise the results are. If the incubation is at 35-37°C for 48 hours, gas formation may be interpreted as presumptive evidence of coliform bacteria. Later confirmation will have to be done using any of the classical methods.

Should the incubation take place at 44,5°C, gas formation could be interpreted as a confirmation of the presence of *Escherichia coli*. Nevertheless, it must be taken into account that the validity of this test is highly limited by technical variations. A maximum incubation time of 24 hours in a water bath with very precise temperature regulation, is therefore recommended.

When using samples greater than 10 mL, the medium must be reconstituted at a concentration equivalent to that specified on the directions, taking into account the added sample volume.

Quality control

Incubation temperature: 44 ± 1 °C

Incubation time: 24 - 48 h ±2

Inoculum: Practical range 100 ± 20 CFU. Min. 50 CFU (productivity) /10⁴-10⁶ CFU (selectivity) according to ISO 11133:2014/Amd 1:2018. Durham tube.

Microorganism	Growth	Remarks
<i>Pseudomonas aeruginosa</i> ATCC® 27853	Inhibited	-
<i>Escherichia coli</i> ATCC® 25922	Good	Gas (+)
<i>Escherichia coli</i> ATCC® 8739	Good	Gas (+)

References

- APHA-AWWA-WEF (1998) Standard Methods for the Examination of Water and Wastewater, 20th ed. APHA, Inc., Washington. DC. USA.
- ATLAS, R.M., L.C. PARKS (1993) Handbook of Microbiological Media. CRC Press, Inc. London.
- DOWNES, F.P. & K. ITO (2001) Compendium of methods for the microbiological examination of foods. 4th ed. APHA. Washington. DC. USA.
- HORWITZ, C. (2000) Official Methods of Analysis of the AOAC International. 17th ed. Gaithersburg. MD. USA.
- ISO 7251 Standard (1993) Microbiology - General Guidance for enumeration of presumptive *E. coli*. M.P.N. Technique.
- MARSHALL, R. (1993) Standard Methods for the Examination of Dairy Products. 16th ed. APHA. Washington. DF. USA.
- ISO 9308-2 Standard (1990) Water Quality. Detection and enumeration of coliform organisms, thermotolerant coliform organisms and presumptive *E. coli* - MPN method.
- ISO 11133:2014/ Adm 1:2018. Microbiology of food, animal feed and water. Preparation, production, storage and performance testing of culture media.

Storage

For laboratory use only. Keep tightly closed, away from bright light, in a cool dry place (+4 °C to 30 °C).