

# EC Broth

For the selective identification of coliform bacteria and *Escherichia coli* in water, foodstuffs and other materials according to HAJNA and PERRY (1943).

This *Escherichia coli* broth complies with the recommendations of the Standard Methods for the Examination of Water and Wastewater (1998).

## Mode of Action

The lactose content of this medium favours the growth of lactose-positive bacteria, especially of coliform bacteria and *E. coli*. The bile salts, however, largely inhibit the growth of Gram-positive bacteria or microorganisms which are not adapted to the intestinal environment. Lactose-positive bacteria metabolize lactose with gas formation.

## Typical Composition (g/litre)

Peptone from casein 20.0; lactose 5.0; bile salt mixture 1.5; sodium chloride 5.0; di-potassium hydrogen phosphate 4.0; potassium dihydrogen phosphate 1.5.

## Preparation

Suspend 37 g or 74 g/litre, fill into test tubes fitted with DURHAM tubes, autoclave (15 min at 121 °C).

pH: 6.9 ± 0.2 at 25 °C.

The prepared broth is clear and yellowish-brown.

## Experimental Procedure and Evaluation

Small aliquots (approx. 1 ml) of the sample material are added to the normal-strength broth, large quantities should be mixed with double-strength broth in order to maintain the normal concentration of the broth.

Incubation: 24-48 hours at 44.5 °C aerobically.

Gas formation at 44.5 °C: *Escherichia coli*, possibly also other coliform bacteria

## Literature

American Public Health Association, American Water Works Association and Water Pollution Control Federation: Standard Methods for Examination of Water and Wastewater, 20<sup>th</sup> ed., Washington, 1998.

FISCHBEIN, M., a. SURKIEWICZ, B.F.: Comparison on the recovery of *Escherichia coli* from frozen foods and nutmeats confirmatory incubation in EC-medium at 44.5 and 45.5 °C. - **Appl. Microbiol.**, **12**; 127-131 (1964).

HAJNA, A.A., PERRY, C.A.: Comparative study of presumptive and confirmative media for bacteria of the coliform group and for fecal *Streptococci*. - **Am. J. Publ. Hlth.**, **33**; 550-556 (1943).

PERRY, C.A., a. HAJNA, A.A.: Further evaluation of EC-medium for the isolation of coliform bacteria and *Escherichia coli*. - **Am. J. Publ. Hlth.**, **34**; 735-738 (1944).

TENNANT, A.D., REID, L.E., ROCKWELL, L., a. BYNDE, E.T.: Coliform bacteria in sea water and shellfish. II. The E.C. confirmation test for *Escherichia coli* - **Can. J. Microbiol.**, **7**; 733-739 (1961).

## Ordering Information

Product	Merck Cat. No.	Pack size
EC Broth	1.10765.0500	500 g

## Quality control

Test strains	Growth at 44.5 °C	Gas formation at 44.5 °C
<i>Escherichia coli</i> ATCC 25922	good	+
<i>Escherichia coli</i> ATCC 8739	good	+
<i>Enterobacter cloacae</i> ATCC 13047	none / fair	-
<i>Klebsiella pneumoniae</i> ATCC 13883	none / fair	-
<i>Citrobacter freundii</i> ATCC 8090	none / fair	-
<i>Proteus mirabilis</i> ATCC 14153	none / fair	-
<i>Pseudomonas aeruginosa</i> ATCC 27853	none / poor	-
<i>Clostridium perfringens</i> ATCC 10543	none / poor	-
<i>Enterococcus faecalis</i> ATCC 19433	none / poor	-