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Presence – Absence Broth

Selective culture medium for the detection of coliform bacteria in water.

The culture medium conforms with the recommendations of standard methods (US-EPA) for the examination of water.

Mode of Action

Peptones and meat extract give the nutrients and trace elements required for growth whereas the phosphate buffer and sodium chloride provide a good buffering capacity and the osmotic equilibrium.

Lactose-fermenting organisms form acid which is identified by the pH indicator bromocresol purple as a colour change from purple to yellow.

The selective component of the culture medium is sodium lauryl sulphate which largely inhibits the undesired accompanying flora - with the exception of the coliforms.

Typical Composition (g/litre)

(single strength)

Meat extract 3.0; peptones 5.0; lactose 7.46; tryptose 9.83; dipotassium hydrogenphosphate 1.35; potassium dihydrogenphosphate 1.35; sodium chloride 2.46; sodium lauryl sulphate 0.05; bromocresol purple 0.0085.

Preparation

For the preparation of the triple strength concentrated broth, completely dissolve 91.5 g in 1 litre of demin water. Fill 50 ml quantities in 250 ml milk dilution bottles with screw caps and autoclave for 12 min. at 121 °C. Allow broth to cool to room temperature.

The pH of the single-strength broth: 6.8 ± 0.2 at 25 °C.

The prepared medium is clear to slightly opalescent and purple-red.

Experimental Procedure

Add 100 ml water samples to the milk dilution bottles filled with 50 ml of triple strength concentrated broth, mix well. Aerobic incubation with a loose screw-cap for up to 48 hours at 35± 0.5°C. Read results after 24 h and 48 h.

Lactose-positive organisms form acid due to the fermentation of the lactose which colours the broth yellow. Gas formation can occur. To identify gas formation, the bottles are shaken gently and inspected to see if a foaming reaction occurs.

All samples with acid and/or acid and gas formation are presumptive-positive and are inoculated for confirmation in Brilliant-green Bile Lactose Broth (BRILA).

If gas formation occurs during the incubation of 48 ± 3 hours at 35 ± 0.5 °C, this can be seen as confirmation of the presence of coliforms in the 100 ml water sample.

Literature

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Ordering Information

Product	Merck Cat. No.	Pack size
Presence - Absence Broth	1.00414.0500	500 g

Uninoculated

Escherichia coli

Presence – Absence Broth

Quality control

Test strains	Growth	Yellow colour	Gas formation in BRILA Broth
Escherichia coli ATCC 25922	Good	Yellow	+
Escherichia coli ATCC 11755	Good	Yellow	+
Enterococcus faecalis ATCC 29212	Medium	Weakly yellow / yellow	-
Pseudomonas aeruginosa ATCC 27853	Poor / medium	None	-