Fecal Coliforms Broth Base (m-FC)

Cat. 1121

For the cultivation and enumeration of fecal coliforms in water by the membrane-filtration technique at a high temperature.

Practical information

Aplications	Categories
Growth	Coliforms

Industry: Water

Principles and uses

Fecal Coliforms Broth Base (m-FC) is prepared according to the formula proposed by Geldreich, Clark and Bert and it is used for the cultivation and enumeration of fecal coliforms microorganisms. This medium is suitable for the membrane filter technique at a high temperature. Many standard procedures specify the use of Fecal coliforms Media for testing water and foods.

Fecal coliforms are differentiated from other coliforms from environmental sources by their ability to grow at 44,5±0,5 ºC.

Proteose and Tryptose provide nitrogen, vitamins, minerals and amino acids essential for growth. Yeast extract is a source of vitamins, particularly of the B-group essential for bacterial growth. Lactose is the fermentable carbohydrate as a carbon and energy source. Bile salts and aniline blue inhibit growth of Gram-positive bacteria. Sodium chloride maintains the osmotic balance. Aniline blue and rosolic acid, which is provided by the supplement, are the differential indicators. Bacteriological agar is the solidifying agent.

Formula in g/L

Bile salts	1,5	Lactose	12,5
Sodium chloride	5	Tryptose	10
Yeast extract	3	Anilinine blue	0,1
Peptone Proteose Nº3	5		

Preparation

Suspend 37,1 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Cool to 45-50 ºC and aseptically add 2 vials of Fecal Coliforms Supplement (Cat. 6023), each vial for 500 ml of the medium previously reconstituted in 5 ml of 1% 0,2 N NaOH solution. Boil for one minute until complete dissolution. Cool to 45-50 ºC and pour 2 ml of the broth medium onto each sterile absorbent pad placed on Petri dishes. DO NOT AUTOCLAVE.

Instructions for use

Membrane filtration method:
- Place the membrane filter, which the sample has been filtered through, on the upper part of the saturated pad with the medium in the Petri dish.
- Incubate the plates for 24±2 hours, one batch as a control at 35±2 ºC, and the rest at 44,5±0,5 ºC.
- Observe coliforms and count the colonies.

The differential indicator system (aniline blue and rosolic acid) gives the colonies of fecal coliforms a blue color, while the rest of microorganisms will become pinkish-colored.

Quality control

Solubility	Appareance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25ºC)
w/o rests	Fine powder	Beige	Gray-blue. With supplement: Red	7,4±0,2

Microbiological test

Incubation conditions: (35±2ºC; 44,5±0,5 ºC / 24±2 h).

Microorganisms	Specification	Characteristic reaction
Shigella flexneri ATCC 12022	Good growth (35 ºC), Inhibited growth (44,5 ºC)	Pinkish colonies on m-FC Agar
Salmonella typhimurium ATCC 14028	Good growth (35 ºC), Inhibited growth (44,5 ºC)	Pinkish colonies on m-FC Agar
Enterococcus faecalis ATCC 19433	Total inhibition	-
Escherichia coli ATCC 25922	Good growth	Blue colonies on m-FC Agar

Storage

Temp. Min.:2 ºC
Temp. Max.:25 ºC

Bibliography

Geldreich, Clark and Kabber, 1963. USPHS, HEN. Personal Communication.
Geldreich, Clark, Huff and Bert, 1965. Journal of American water works Association, 57:208.