Technical Information

M-Lauryl Sulphate Broth

Product Code: DM 2023

Application: - M-Lauryl Sulphate Broth is used for enumeration of Escherichia coli and coliforms in water, using membrane filter technique.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	39.000
Yeast extract	6.000
Lactose	30.000
Phenol red	0.200
Sodium lauryl sulphate	1.000
Final pH (25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

The membrane filter technique is used when large volumes of samples from different sources are to be tested. It is an useful method in monitoring quality of drinking water including variety of natural water sources [1]. The earlier medium used to detect coliforms in water employed bile salts as the selective agent. This was replaced with Teepol by Burman [2]. The effectiveness of teepol was also demonstrated earlier [3, 4]. M - Lauryl Sulphate Broth is similar to this medium, the only difference is the replacement of teepol with sodium lauryl sulphate as the inhibitory agent. M-Lauryl Sulphate Broth is recommended for enumeration of Escherichia coli and coliforms using membrane filtration technique [5, 6].

An absorbent pad is saturated with M-Lauryl Sulphate Broth. The membrane filter, through which the water sample is passed, is aseptically placed on this saturated absorbent pad, with face upwards and incubated at specific temperature for specific incubation period as described by Burman [7] for chlorinated & an cholinnated water separately.

Unchlorinated waters:

Coliform organisms : 4 hours at 30°C followed by 14 hours at 35°C Escherichia coli : 4 hours at 30°C followed by 14 hours at 44°C

Non-chlorinated organisms benefit from 4 hours incubation at 30°C but chlorinated organisms require 6 hours incubation at 25°C. After incubation, yellow colonies are formed which should be confirmed further.

Peptic digest of animal tissue and yeast extract act as a source of nitrogen, carbon and amino acids. Lactose is the source of fermentable carbohydrate. Phenol red serves as an indicator. Sodium lauryl sulphate inhibits gram-positive bacteria.

Methodology

Suspend 76.2 grams of powder media in 1000 ml distilled water. Shake well & heat to dissolve the medium completely. Dispense as desired and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Quality Control

Physical Appearance
Light yellow to pink homogeneous free flowing powder
Colour and Clarity of prepared medium
Red coloured clear solution without any precipitate
Reaction
Reactionof 7.62% w/v aqueous solution at 25°C.pH:-7.4±0.2
pH range 7.20-7.60
Cultural Response/ characteristices
DM 2023: Cultural characteristics on membrane filter after an incubation at different temperatures for 24 hours.

Organism	Inoculum (CFU)	Growth at 35-37°C	Growth at 44°C	Colour of colony on Membrane
Enterobacter aerogenes ATCC 13048	50-100	luxuriant	inhibited	yellow
Bacillus subtilis ATCC 6633	>=10^3	inhibited	inhibited	
Staphylococcus aureus ATCC 25923	>=10^3	inhibited	inhibited	
Enterococcus faecalis ATCC 29212	>=10^3	inhibited	inhibited	
Escherichia coli ATCC 25922	50-100	luxuriant	luxuriant	yellow

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Eaton A. D., Clesceri L. S. and Greenberg A. E., (Eds.), 1995, Standard Methods for the Examination of Water and Wastewater, 19th Ed., American Public Health Association, Washington, D.C.
2. Burman N. P., 1967, Proc. Soc. Wat. Treat. Exam., 16:40.
3. Jameson J. E. and Emberley N.W., 1956, J. Gen. Microbiol. 15:198-204
4. Jebb W. H. H., 1959, J. Hyg. Camb. 57. 184-192
5. Joint Committee of PHLS and the Standing Committee of Analysts, 1980, J. Hyg. Camb. 85.18 1
6. Department of the Environmental Health and Social Security and PHLS, 1982, The Bacteriological Examination of Drinking Water Supplies, Report on Public Health and Medical Subjects No. 71, HMSO, London.
7. Burman N. P., 1967, Rec. Adv. in Bacteriological Examination of waters; C.H. Collins (Ed.), Butterworth, London.

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