Dehydrated Culture Media
Bases / Media Supplements

Technical Information

A-1 Broth

Product Code: DM 1874

Application: - A-1 Broth is used for detecting faecal coliforms in drinking, water waste water, seawater and foods samples by MPN Method.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	20.000
Lactose	5.000
Sodium chloride	5.000
Salicin	0.500
Polyethylene glycol p-isooctylphenyl ether (Triton 100)	1.000
Final pH (at 25°C)	6.9±0.1

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Escherichia coli is used as the indicator organism for detecting the faecal contamination of water. Andrews and Presnell [1] formulated A-1 Medium, which was capable of recovering *Escherichia coli* from estuarine waters in 24 hours instead of 72 hours by avoiding the pre-enrichment step as recommended by APHA [2]. This reduced the time required for the complete identification of *E. coli* [3] by the elevated temperature and most probable number (MPN) methods, routinely used for water analysis. A-1 Medium substantially reduces the incidence of false positive cultures. Also, Stanbridge and Delfino found that There was no significant difference statistically in the results obtained by 3-hours pre-incubation step (using A-1 Medium) and the two-step MPN technique used for the enumeration of *E. coli* in chlorinated waste-water [4]. Fast recovery of faecal coliforms from shell fish [5] and sea water [6] was also reported. A-1 Medium also conforms to the standard methods used for the isolation of faecal coliforms in food, water and wastewater [2, 7].
(Carbonaceous and nitrogenous substances required for bacterial metabolism is provided by Casein enzymic hydrolysate, Lactose and salicin act as energy sources and sodium chloride maintains osmotic equilibrium. Polyethylene glycol p-isooctylphenyl ether acts as a surfactant. Presence of gas bubbles in the inverted Durhams tubes is a positive indication of presence of faecal coliforms. The number of faecal coliform can be calculated by the standard methods using the MPN table.

Methodology

Suspend 3 1.5 grams of powder media in 1000 ml distilled water. Shake well & heat if necessary to dissolve the medium completely. Distribute 10 ml amounts into tubes containing inverted Durham's tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 10 minutes

Quality Control

Physical Appearance
Cream to yellow homogeneous free flowing powder
Colour and Clarity of prepared medium
Light amber coloured clear solution after cooling to room temperature.
Reaction
Reaction of 3.15% w/v aqueous solution at 25°C. pH : 6.9±0.1
pH Range 6.80-7.00
Cultural Response/Characteristics
Cultural characteristics observed after an incubation for 18-24 hours at different temperatures

Organism	Inoculum (CFU)	Growth at 35°C	Growth at 44.5°C
Bacillus subtilis ATCC 6633	50-100	none	none
Enterobacter aerogenes ATCC 13048	50-100	luxuriant (may or may not produce gas)	poor-fair
Escherichia coli ATCC 25922	50-100	luxuriant with gas	luxuriant with gas
Salmonella Typhimurium ATCC 14028	50-100	luxuriant without gas	good without gas
Enterococcus faecalis ATCC 19433	50-100	poor	none - poor

Storage and Shelf Life

Dried media: Store below 30°C in tightly closed container and use before expiry date on mentioned the label.
Prepared Media: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

1. Andrews and Presnell, 1972, Appl. Microbiol., 23:521.
2. Eaton A. D., Clesceri L. S., and Greenberg A. W., (Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st Ed., APHA, Washington, D.C.
3. Andrews, Diggs and Wilson, 1975, Appl. Microbiol., 29:130.
4. Standridge and Delfino, 1981, Appl. Environ. Microbiol., 42:918.
5. Hunt and Springer, 1978, J. Assoc. Off. Anal. Chem., 61:13 17
6. Miescier et al, 1978, J. Assoc. Off. Anal. Chem., 61:772.
7. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., American Public Health Association, Washington, D.C.

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