Letheen Agar I Modified

M1834

Recommended to determine the phenol coefficient of quaternary ammonium compounds using *Escherichia coli* or *Staphylococcus aureus* ATCC 6538.

Composition**

Ingredients	Gms / Litre
Beef extract	3.000
Pancreatic digest of Casein	5.000
Dextrose	1.000
Polysorbate 80	7.000
Lecithin	1.000
Tryptone	10.000
Proteose peptone No.3	10.000
Yeast extract	2.000
Sodium chloride	5.000
Sodium bisulphite	0.100
Agar	15.000
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 59.10 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and dispense as desired.

Principle And Interpretation

In the early 40s, Weber and Black recommended the use of lecithin and polysorbates to neutralize the antimicrobial action of the quaternary ammonium compounds (3). In 1965, the methodology was accepted by AOAC for the antimicrobial assays and extended their use to all the cationic detergents. In 1978, the FDA incorporated it as pre-enrichment medium for every microbial examination of cosmetics. Letheen Agar I Modified is used to partially inactivate the preservatives in cosmetics being analyzed for the microbial content (1). This medium was originally recommended by APHA for use in microbial testing of water (2).

Peptic digest of animal tissue, casein enzymic hydrolysate, beef extract and yeast extract provide nitrogenous nutrients, carbon compounds and trace elements to the microorganisms. Incorporation of lecithin and polysorbate 80 to the medium enables the recovery of bacteria from materials containing residues of disinfectant compounds or preservatives used in cosmetics. Polysorbate 80 is added to nullify phenolic compounds, hexachlorophene, formalin and along with lecithin neutralizes ethyl alcohol (4). Lecithin also neutralizes quaternary ammonium compounds present in the cosmetics. Sodium chloride maintains the osmotic balance of the medium.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Yellow coloured, clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 5.4% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH
7.00-7.40

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours .

Cultural Response

Organism	Inoculum (CFU)	Growth	Recovery
Cultural Response			
Escherichia coli ATCC 25922	50-100	luxuriant	>=70%
Staphylococcus aureus ATCC 25923	50-100	luxuriant	>=70%
Staphylococcus aureus ATCC 6538	50-100	good-luxuriant	>=70%

Storage and Shelf Life

Store below 30°C in tightly closed container and prepared media at 2-8°C. Use before expiry date on label.

Reference

1.Madden J. M. and Dallas W. S., 1984, Bacteriological Analytical Manual, 6th Ed., AOAC, Arlington, Va.
2.APHA, 1960, Standard Methods for the Examination of Water and Wastewater, 11th Ed., American Public Health Association, New York.
3.Weber and Black, 1948, Soap Sanitary Chem., 24:134-139. 4.Dunningan A. P., 1968, Drug Cosmet. Ind., 102:43.
5.Smart R. and Spooner D. F., 1972, J. Soc. Cosmet. Chem., 23:721.
6.Wilson L. A. and Ahearn D. G., 1977, Am. J. Opthalmol., 84:112.
7.Favero (Chm.), 1967, A State of the Art Report, Biological Contamination Control Committee, American Association for Contamination Control.

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