

Technical Information

Lethen Agar, Modified

Product Code: DM 1946

Application: - This medium is recommended for screening cosmetic products for microbial contamination.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	10.000
Casein enzymic hydrolysate	10.000
Beef extract	3.000
Yeast extract	2.000
Sodium chloride	5.000
Lecithin	1.000
Polysorbate 80	7.000
Dextrose	1.000
Sodium bisulphite	0.100
Agar	15.000
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & 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⁾. This medium was originally recommended by APHA for use in microbial testing of water⁽²⁾. In 1965, the methodology was accepted by AOAC for the antimicrobial assays and extended their application to all the cationic detergents. In 1978, the FDA incorporated it as pre-enrichment medium for every microbial examination of cosmetics. Lethen Agar, Modified is used to partially inactivate the preservatives in cosmetics being analyzed for the microbial content⁽¹⁾.

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.

Methodology

Suspend 54.10 grams of powder media in 1000 ml distilled water. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and dispense as desired.



Dehydrated Culture Media
Bases / Media Supplements

Quality Control

Physical 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 Range: 7.00-7.40

Cultural Response/Characteristics

DM: 1946 Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Cultural Response	Inoculum (CFU)	Growth	Recovery	Esculin Hydrolysis
<i>Escherichia coli</i> ATCC 25922	50-100	luxuriant	≥70%	Positive reaction blackening of medium
<i>Staphylococcus aureus</i> ATCC 25923	50-100	luxuriant	≥70%	Negative reaction
<i>Staphylococcus aureus</i> ATCC 6538	50-100	good-luxuriant	≥70%	Positive reaction blackening of medium around the colony

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: 2-8⁰ in sealable plastic bags for 2-5 days.

Further Reading

- 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. Ophthalmol., 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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