Technical Information

Letheen Broth, Modified

Product Code: DM 1976

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

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	20.000
Casein enzymic hydrolysate	5.000
Beef extract	5.000
Yeast extract	2.000
Sodium chloride	5.000
Sodium bisulphite	0.100
Lecithin	0.700
Polysorbate 80	5.000
Final pH (at 25°C)	7.0±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 [5]. Later in 1965, the methodology was accepted by AOAC for the antimicrobial assays of all the cationic detergents. Followed by in 1978, the FDA incorporated it as pre-enrichment medium for every microbial examination of cosmetics.

There are chances of altering the chemical composition of cosmetics by the metabolism of organism s thereby spoiling and causing harm to the users [2-4]. Direct colony counts and enrichment culturing are the methods of choice for isolating microorganisms from cosmetic products. The word Letheen represents a combination of lecithin and polysorbate (tween) 80. Letheen Broth, Modified is prepared as per FDA [1] for screening cosmetic products for microbial contamination.

Peptic digest of animal tissue, casein enzymic hydrolysate, beef extract and yeast extract provide nitrogenous nutrients, carbon compounds and trace elements to the microorganisms. Addition 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 [6]. Lecithin also neutralizes quaternary ammonium compounds present in the cosmetics. Sodium chloride maintains the osmotic balance of the medium.
Enrichment in this medium should be done for 7 days at 3 0-32°C and then subcultured on Letheen Agar, Modified (DM1946) and/or

Methodology

Suspend 42.8 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.

Quality Control

Physical Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Yellow coloured, clear solution in tubes

Reaction

Reaction of 4.28% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH Range 6.80-7.20

Cultural Response/Characteristics

DM 1976: Cultural characteristics observed after an incubation at 35-37^{0}C for 24-48 hours.

Organism	Inoculum (CFU)	Growth
Escherichia coli ATCC 25922	50-100	luxuriant
Staphylococcus aureus ATCC 25923	50-100	luxuriant
Staphylococcus aureus ATCC 6538	50-100	good-luxuriant

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: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

1. Bacteriological Analytical Manual, 1995, Food and Drug Administration, 8th Ed., AOAC International, Gaithersburg, MD, U.S.A.
2. Dunningan A. P., 1968, Drug Cosmet. Ind., 102:43.
3. Smart R. and Spooner D. F., 1972, J. Soc. Cosmet. Chem., 23:721.
4. Wilson L. A. and Ahearn D. G., 1977, Am. J. Opthalmol., 84:112.
5. Weber and Black, 1948, Soap Sanitary Chem., 24:134-139
6. Favero (Chm.), 1967, A State of the Art Report, Biological Contamination Control Committee, American Association for Contamination Control.

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