Letheen Agar w/Triton X-100

M1642

This medium is recommended for screening cosmetic products for microbial contamination.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	10.000
Beef extract	5.000
Sodium chloride	5.000
Lecithin	0.700
Polysorbate 80	5.000
Triton X-100	1.000
Agar	15.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 41.7 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 pour into sterile Petri plates.

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 (4). 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.

There are great chances of altering the chemical composition of cosmetics by the metabolism of organisms thereby spoiling and causing harm to the users (1, 2, 3). 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 Agar with Triton X-100 is recommended for luxuriant growth of most organisms for detection of yeast and moulds. Triton X-100 is non-ionic and disperses microorganisms making counting easier.

Peptic digest of animal tissue, beef 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 (5). Lecithin also neutralizes quaternary ammonium compounds present in the cosmetics. Sodium chloride maintains the osmotic balance of the medium. Triton X-100 acts as a surfactant. Cosmetics contain preservatives and they should be at least partially inactivated during the plating and this medium helps in dilution as well as neutralizing.

Enrichment in this medium should be done for 7 days at 30-32°C and then subcultured on Letheen Agar, Modified (M946) and/or MacConkey Agar (M081).

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 4.17% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH
6.80-7.20

Cultural Response
M1642: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery
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 the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference
1. Dunningan A. P., 1968, Drug Cosmet. Ind., 102:43.
2. Smart R. and Spooner D. F., 1972, J. Soc. Cosmet. Chem., 23:721.
3. Wilson L. A. and Ahearn D. G., 1977, Am. J. Opthalmol., 84:112.
4. Weber and Black, 1948, Soap Sanitary Chem., 24:134-139
5. Favero (Chm.), 1967, A State of the Art Report, Biological Contamination Control Committee, American Association for Contamination Control.

Revision : 2 / 2015