Modified Tergitol-7 Agar Base (Tergitol-7 Agar Base,Modified) M616I

Modified Tergitol-7 Agar Base is used for selective isolation and enumeration of coliform organisms in water by membrane filter method.The composition and performance criteria of this medium are as per the specifications laid down in ISO 9308-1:1990.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	10.000
Yeast extract	6.000
Meat extract	5.000
Lactose	20.000
Sodium heptadecyl sulphate(Tergitol 7)	0.100
Bromo thymol blue	0.050
Agar	16.000
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 57.15 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. Cool to 45-50°C. Add 2.5 ml of 1% Triphenyl Tetrazolium Chloride (TTC) (FD057). Mix well and pour into sterile Petri plates.

Principle And Interpretation

Tergitol-7 Agar is a selective and differential medium for the detection and enumeration of coliforms in water. Chapman (1, 2) modified his original formula of Tergitol-7 Agar by addition of Triphenyl Tetrazolium Chloride (TTC). It is now recommended by ISO Committee (3).

Tergitol-7 is a selective agent (4) which inhibits gram positive organisms and minimises swarming of *Proteus* species enabling better coliform recovery. Lactose fermentation is observed by change in colour of bromo thymol blue, the pH indicator. Triphenyl Tetrazolium Chloride (TTC) allows earlier recognition and identification of *Escherichia coli* and *Enterobacter aerogenes* in water and food (5).

Peptic digest of animal tissue, meat extract and yeast extract serve as sources of carbon, nitrogen and other essential nutrients including vitamin B complex. Bromothymol blue is the pH indicator. TTC is rapidly reduced by coliforms except *Escherichia coli* and *Enterobacter aerogenes* to insoluble formazan which gives red colour to the colonies. The lactose fermenters show greenish yellow colonies with yellow zones while lactose non-fermenters show red colonies surrounded by blue zones.

Filter the specimen to be analyzed through two membranes. Place the membrane upon two TTC Tergitol Agar plates. Incubate one plate at 37°C for 24 hours (total coliforms) and the other at 44°C for 18-24 hours (faecal coliforms). The yellow colonies with deep yellow halo after incubation at 44°C should be identified as faecal coliform bacteria.

Quality Control

Appearance
Cream to light green homogeneous free flowing powder

Gelling
Firm, comparable with 1.6% Agar gel.

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

Reaction
Reaction of 5.71% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH
7.00-7.40

Cultural Response

M616I: Cultural characteristics observed after an incubation at 35-37°C for 18 - 48 hours with added TTC Solution 1% (FD057).

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony (on plain medium)	Colour of colony (with addition of FD057
Cultural Response					
Enterobacter aerogenes ATCC 13048	50-100	luxuriant	>=50%	yellow	reddish brown
Escherichia coli ATCC 25922	50-100	luxuriant	>=50%	yellow	yellow with red centre
Klebsiella pneumoniae ATCC 13883	50-100	luxuriant	>=50%	yellow	yellow with red centre
Proteus vulgaris ATCC 13315	50-100	good	40-50%	colourless with bluish zone	red with bluish zone
Pseudomonas aeruginosa ATCC 27853	50-100	good	40-50%	colourless with bluish zone	red with bluish zone
Salmonella Typhimurium ATCC 14028	50-100	luxuriant	>=50%	colourless with blue zone	red with bluish zone
Staphylococcus aureus ATCC 25923	>=10^3	inhibited	0%		

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. Chapman G.H., 1947, J. Bact., 53:504.
2. Chapman G.H., 1951, Am. J. Public Health, 41:1381.
3. International Organization For Standardization (ISO), 1990, Draft ISO/DIS 9308-1.
4. Pollard A.L., 1946, Science., 103:758.
5. Mossel D.A.A., 1962, J. Appl. Bact., 25:20.

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