Tergitol-7 Agar Base

M616

Intended Use:

Recommended for selective enumeration and identification of coliform organisms.

Composition**

Ingredients	Gms / Litre
Proteose peptone	5.000
Yeast extract	3.000
Lactose	10.000
Tergitol 7 (Sodium heptadecyl sulphate)	0.100
Bromo thymol blue	0.025
Agar	15.000
Final pH (at 25°C)	6.9±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 33.12 grams in 1000 ml purified / 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. Aseptically add 3 ml of Triphenyl Tetrazolium Chloride (TTC) Solution (FD057), if desired. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Tergitol-7 Agar was originally designed by Chapman (1) and later on modified by incorporating 2,3,5-Triphenyl Tetrazolium Chloride (TTC) into the medium. This medium is selective and differential used for the detection and enumeration of coliform organisms. Pollard (2) has reported the selective bactericidal property of sodium heptadecyl sulphate (Tergitol-7). Kulp et al (3) corroborated the use of Tergitol-7 Agar with TTC in routine analysis of water and Mossel (4) used this medium for the examination of food materials.

Proteose peptone and yeast extract serve as sources of carbon, nitrogen and other essential nutrients including vitamin B complex. Sodium heptadecyl sulphate (Tergitol-7) inhibits gram-positive bacteria and *Proteus* swarming and yields better recovery of coliforms. Bromo thymol blue is the pH indicator. Lactose fermenting organisms form yellow colonies with yellow zones while *Klebsiella* and *Enterobacter* form greenish yellow colonies. Lactose non-fermenters produce blue colonies. TTC is reduced by the bacterial cell except *Escherichia coli* and *Klebsiella aerogenes* to form formazan, a red coloured insoluble complex, thereby producing red coloured colonies.

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.

Limitations :

1. Further biochemical and serological tests must be carried out for further identification.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance
Cream to light green homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

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

Reaction
Reaction of 3.31% w/v aqueous solution at 25°C. pH : 6.9±0.2

pH
6.70-7.10

Cultural Response

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/ medium
# Klebsiella aerogenes ATCC 13048 (00175*)	50-100	luxuriant	>=50%	Reddish brown
Escherichia coli ATCC 25922	50-100	good-luxuriant	>=50%	yellow with red centre
Proteus mirabilis ATCC 25933	50-100	good	40-50%	red with bluish zone
Pseudomonas aeruginosa ATCC 27853	50-100	good	40-50%	red with bluish zone
Salmonella Typhimurium ATCC 14028	50-100	luxuriant	>=50%	red with bluish zone
Staphylococcus aureus ATCC 25923	>=10^4	inhibited	0%	
Shigella flexneri ATCC 12022	50-100	good-luxuriant	>=50%	red with bluish zone

Key : (*) Corresponding WDCM numbers.
(#) Formerly known as *Enterobacter aerogenes*

Reference

1.Chapman G.H., 1947, J. Bact., 53:504.
2.Pollard A.L., 1946, Science, 103:758.
3.Kulp W., Mascoli C. and Tavshanjian O., 1953, Am. J. Public Health, 43:1111.
4.Mossel D.A.A., 1962, J. Appl. Bact., 25:20.

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