M-Tergitol 7 Agar Base

M1066

M-Tergitol 7 Agar Base is recommended for selective isolation and identification of injured coliforms from chlorinated water using membrane filter technique.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	2.500
Casein enzymic hydrolysate	2.500
Yeast extract	3.000
Lactose	20.000
Polyethelene ether w-1	5.000
Sodium heptadecyl sulphate	0.100
Bromo thymol blue	0.100
Bromo cresol purple	0.100
Agar	15.000
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 48.3 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. For additional selectivity, after cooling the medium to 45-50°C aseptically add 1.0 µg of Penicillin G per milliliter of medium if desired.

Principle And Interpretation

McFeters, Cameron and LeChevallier modified Tergitol 7 Agar to improve its selective and differential properties for the recovery of stressed coliforms from chlorinated water (1). They have reported that the selective media such as M-Endo Agars used to isolate gram-negative bacteria recovered only 30% or less as compared to recovery between 71 & 100% of injured coliforms on Tergitol 7 Agar (2). In their study of water samples, including samples containing laboratory-stressed coliforms and surface and drinking water samples, M-Tergitol 7 Agar Base recovered 43% more coliforms than on M-Endo Agar and 36% more coliforms than by using M-Endo Agar with a resuscitation technique (1).

McFeters et al. have also reported recovery of 3.1 times more fecal coliform coliforms on M-Tergitol 7 Agar Base than the standard M-FC method and 1.7 times more than the two-layer

enrichment temperature acclimation procedure (3). In another study of 102 drinking water samples 8 to 38 fold more yield of coliforms has been reported on M-Tergitol 7 Agar Base as compared to M-Endo Agar LES (4).

The casein enzymic hydrolysate and peptic digest of animal tissue provide necessary nitrogenous growth factors. Yeast extract is the source of B-vitamins and organic nitrogen and carbon compounds. Lactose is the fermentable carbohydrate. Microorganism fermenting lactose produces yellow colonies due to reaction with bromothymol blue and bromocresol purple indicators. These indicators also act as inhibitors of non-coliform microbes.

Sodium heptadecyl sulphate (Tergitol 7) and polyoxyethylene ether W-1 are surface active agents which inhibit growth of gram-positive bacteria as well as swarming of *Proteus* (1,5). Inhibition of gram-positive bacteria can be improved by aseptically adding penicillin G (1.0 µg/ml) after autoclaving and cooling to 45°C.

Quality Control

Appearance

Yellow to blue coloured homogeneous free flowing powder

Gelling

Firm comparable with 1.5% Agar gel.

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

pH
7.20-7.60

Cultural Response
M1066: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Cultural Response				
Escherichia coli ATCC 25922	50-100	Luxuriant	>=50%	yellow
Enterobacter aerogenes ATCC 13048	50-100	Luxuriant	>=50%	yellow
Salmonella Typhimurium ATCC 14028	50-100	Luxuriant	>=50%	blue
Salmonella Paratyphi A ATCC 9150	50-100	Luxuriant	>=50%	blue
Shigella flexneri ATCC 12022	50-100	Luxuriant	>=50%	blue
Salmonella Typhi ATCC 6539	50-100	Luxuriant	>=50%	blue
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. McFeters, LeChevallier and Cameron 1983, Appl. Environ. Microbiol. 45:484.
2. McFeters, Cameron and LeChevallier 1982 Appl. Environ. Microbiol., 43:97.
3. LeChevallier, Jakanoski, Camper and McFeters 1984 Appl. Environ. Microbiol. 48:371.
4. McFeters, Kippin and LeChevallier 1986, Appl. Environ. Microbiol., 51:1.
5. Pollard, 1946 Science, 103:758.

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