

Technical Information

M-Tergitol 7 Agar Base

Product Code: DM 2066

Application: - M-Tergitol 7 Agar Base is used 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

Principle & 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 supply necessary nitrogenous growth factors. Yeast extract acts as a source of B-vitamins and organic nitrogen and carbon compounds. Lactose serves as fermentable carbohydrate. Microorganism fermenting lactose produces yellow colonies due to reaction with bromothymol blue and bromocresol purple acts as 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 prevent the 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.

Methodology

Suspend 48.3 grams of dehydrated powder media in 1000 ml distilled water. Mix thoroughly & 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.

Quality Control

Appearance

Yellow to blue coloured homogeneous free flowing powder

Gelling

Firm comparable with 1.5% Agar gel.

Colour and Clarity

Purple coloured clear to slightly opalescent gel forms in Petri plates.

pH Range

7.20-7.60

Cultural Response

DM2066: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

| Organism | Inoculum (CFU) | Growth | Recovery | Colour of colony |
|--|-------------------|-----------|----------|------------------|
| <i>Escherichia coli</i> ATCC 25922 | 50-100 | Luxuriant | >=50% | yellow |
| <i>Enterobacter aerogenes</i> ATCC 13048 | 50-100 | Luxuriant | >=50% | yellow |
| <i>Salmonella Typhimurium</i> ATCC 14028 | 50-100 | Luxuriant | >=50% | blue |
| <i>Salmonella Paratyphi A</i> ATCC 9150 | 50-100 | Luxuriant | >=50% | blue |
| <i>Shigella flexneri</i> ATCC 12022 | 50-100 | Luxuriant | >=50% | blue |
| <i>Salmonella Typhi</i> ATCC 6539 | 50-100 | Luxuriant | >=50% | blue |
| <i>Staphylococcus aureus</i> ATCC 25923 | >=10 ³ | Inhibited | 0% | - |

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label.

Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

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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