M17 Broth w/o Lactose

M1907

It is used for cultivation of *Streptococcus thermophilus* on addition of lactose

Composition**

Ingredients	Gms / Litre
Disodium glycerophosphate	19.000
Soya peptone	5.000
Tryptone	5.000
Beef extract	5.000
Yeast extract	2.500
Ascorbic acid	0.500
Magnesium sulphate	0.250
Final pH (at 25°C)	6.9±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 37.25 grams in 950 ml distilled water. Heat, if necessary, to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C and aseptically add 50 ml of 10% w/v lactose solution sterilized separately by by filtration through a 0.2µm membrane filter. Mix well and dispense as desired.

Principle And Interpretation

M17 broth is based on the formulation described by Terzaghi and Sandine (1) for the isolation and enumeration of Streptococcus and their bacteriophages.

Lactic Streptococci are nutritionally fastidious and require complex media for optimal growth (2, 3).

Tryptone, Soya Peptone, Yeast extract, Beef extract provide carbonaceous, nitrogenous compounds, vitamin B complex and other essential growth factors. Lactose is the fermentable carbohydrate. Ascorbic acid is stimulatory for the growth of lactic Streptococci. Magnesium sulphate provides essential ions to the organisms. Diodium ß-glycerophosphate maintains the pH about 5.7 due to its buffering action.

Shankar and Davies (4) reported isolation and enumeration of *Streptococcus thermophilus* from yoghurt. M17 broth is recommended by the International Dairy Federation (5)for selective enumeration of *Streptococcus thermophilus* from yoghurt. It is also suitable for cultivation and maintenance of starter cultures for cheese and yoghurt manufacturing.

Quality Control

Appearance
Cream to light yellow homogeneous free flowing powder

Colour and Clarity of prepared medium
Light yellow coloured clear to slightly opalescent solution in tubes

Reaction
Reaction of 3.73% 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 24-48 hours.

Cultural Response

Organism	Inoculum (CFU)	Growth
Cultural Response		
Enterococcus faecalis ATCC 29212	50-100	good-luxuriant

Lactobacillus bulgaricus ATCC 11842	50-100	none-poor
Lactobacillus leichmannii ATCC 4797	50-100	good-luxuriant
Lactobacillus plantarum ATCC 8014	50-100	good-luxuriant
Streptococcus thermophilus ATCC 14485	50-100	good-luxuriant

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.Terzaghi B.E. and Sandine W.E., 1975, Appl. Microbiol., 29:807.
2.Anderson A.W. and Elliker P.R., 1953, J. Dairy Sci., 36:161.
3.Reiter B. and Oran J.D., 1962, J. Dairy Res., 29:63.
4.Shankar P.A. and Davies F.L., 1977, Soc. Dairy Technol., 30:28.
5.International Dairy Federation, 1981, Joint IDF/ISO/AOAC Group E44.

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