



M17 Broth

M1029

M17 Media are used for cultivation of lactic Streptococci and plaque assay of lactic bacteriophages.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	2.500
Casein enzymic hydrolysate	2.500
Papaic digest of soyabean meal	5.000
Yeast extract	2.500
Beef extract	5.000
Lactose	5.000
Ascorbic acid	0.500
Disodium - β - glycerophosphate	19.000
Magnesium sulphate	0.250
Final pH (at 25°C)	7.1±0.1

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 42.25 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and dispense as desired.

Principle And Interpretation

M17 broth is based on the formulation described by Terzaghi and Sandine (1) for the cultivation and enumeration of lactic Streptococci and their bacteriophages. M17 Broth is a modification of M16 Medium (2).

Lactic Streptococci are nutritionally fastidious and require complex media for optimal growth (3, 4). Disodium glycerophosphate maintains the pH above 5.7. The maintenance of pH is very important as the lower pH results in injury and reduced recovery of lactic Streptococci. Glycerophosphate does not form precipitate with calcium which is needed for the plaque assay of lactic bacteriophages.

Peptic digest of animal tissue, casein enzymix hydrolysate, papaic digest of soyabean meal, yeast extract, beef extract, provide carbonaceous, nitrogenous compounds, vitamin B complex and other essential growth factors. Lactose is the fermentable carbohydrate and ascorbic acid is stimulatory for the growth of lactic Streptococci. Magnesium sulphate provides essential ions to the organisms.

Disodium- β -glycerophosphate maintains the pH above 5.7. The maintenance of pH is very important as lower pH results in injury and reduced recovery of lactic Streptococci. Shankar and Davies (5) reported isolation and enumeration of *Streptococcus thermophilus* from yoghurt. Disodium glycerophosphate suppresses *Lactobacillus bulgaricus* .

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Light yellow coloured clear to slightly opalescent solution in tubes

Reaction

Reaction of 4.23% w/v aqueous solution at 25°C. pH : 7.1±0.1

pH

7.00-7.20

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 24-48 hours.

Cultural Response

Organism	Inoculum (CFU)	Growth
<i>Enterococcus faecalis</i> ATCC 50-100 29212		good-luxuriant
<i>Lactobacillus bulgaricus</i> ATCC 11842	50-100	none-poor
<i>Lactobacillus leichmannii</i> ATCC 4797	50-100	good-luxuriant
<i>Lactobacillus plantarum</i> ATCC 8014	50-100	good-luxuriant
<i>Streptococcus thermophilus</i> 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. Lawrie and Pearee, 1971, J. Dairy Sci. Technol., 6:166.
3. Anderson A.W. and Elliker P.R., 1953, J. Dairy Sci., 36:161.
4. Reiter B. and Oran J.D., 1962, J. Dairy Res., 29:63.
5. Shankar P.A. and Davies F.L., 1977, Soc. Dairy Technol., 30:28.

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