



## M17 Broth

M1029

### Intended Use

Recommended for cultivation of lactic Streptococci and their bacteriophages.

### Composition\*\*

Ingredients	Gms / Litre
Peptone	2.500
Tryptone	2.500
Soya peptone	5.000
Yeast extract	2.500
HM Peptone B#	5.000
Lactose	5.000
Ascorbic acid	0.500
Disodium - $\beta$ - glycerophosphate	19.000
Magnesium sulphate	0.250
Final pH ( at 25°C)	7.1 $\pm$ 0.1

\*\*Formula adjusted, standardized to suit performance parameters

# Equivalent to Beef Extract

### Directions

Suspend 42.25 grams in 1000 ml purified/distilled water. Heat if necessary to dissolve the medium completely. Dispense into tubes or flasks or as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

### Principle And Interpretation

M17 broth is based on the formulation described by Terzaghi and Sandine (7) for the cultivation and enumeration of lactic Streptococci and their bacteriophages. M17 Broth is a modification of M16 Medium (4).

Lactic Streptococci are nutritionally fastidious and require complex media for optimal growth (1,5). 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.

Peptone, soya peptone, tryptone, yeast extract and HM peptone B provide carbonaceous, nitrogenous compounds, long chain amino acids, 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- $\beta$ -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 (6) reported isolation and enumeration of *Streptococcus thermophilus* from yoghurt. Disodium glycerophosphate suppresses *Lactobacillus bulgaricus*.

### Type of specimen

Dairy samples

### Specimen Collection and Handling

For dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (8).

After use, contaminated materials must be sterilized by autoclaving before discarding.

### Warning and Precautions :

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

### Limitations :

1. The maintenance of pH is very important as lower pH results in injury and reduced recovery of lactic Streptococci.

### 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 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.

Organism	Inoculum (CFU)	Growth
<i>Enterococcus faecalis</i> ATCC 29212 (00087*)	50-100	good-luxuriant
<i>Lactobacillus delbrueckii</i> subsp. <i>bulgaricus</i> ATCC 11842 (00102*)	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

Key : \*Corresponding WDCM numbers.

## Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

## Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (2,3).

## Reference

1. Anderson A.W. and Elliker P.R., 1953, J. Dairy Sci., 36:161.
2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
3. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
4. Lawrie and Pearee, 1971, J. Dairy Sci. Technol., 6:166.
5. Reiter B. and Oran J.D., 1962, J. Dairy Res., 29:63.
6. Shankar P.A. and Davies F.L., 1977, Soc. Dairy Technol., 30:28.
7. Terzaghi B.E. and Sandine W.E., 1975, Appl. Microbiol., 29:807.
8. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

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### Disclaimer :

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