

**M17 BROTH****TM 185**

for cultivation and isolation of lactic Streptococci and their bacteriophages

**Composition**

Ingredients	Gms/Ltr.
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 - $\beta$ - glycerophosphate	19.000
Magnesium sulphate	0.250

\* Dehydrated powder, store in a dry place, in tightly-sealed containers at 24°C and protect from direct Sunlight.

**Instructions for Use**

Dissolve 42.25gms in 1000 ml of distilled water. Gently heat to boiling with gentle swirling and dissolve the medium completely. Sterilize by autoclaving at 15 psi (121°C) for 15 minutes. Mix well and dispense as desired.

**Appearance:** Light yellow coloured clear to slightly opalescent

**pH (at 25°C):** 7.1  $\pm$  0.2

**Principle**

**M17 BROTH** is used for cultivation and isolation of lactic Streptococci and their bacteriophages. M17 Broth is a modification of M16 Medium. M17 broth is based on the formulation described by Terzaghi and Sandine. Terzaghi and Sandine showed that the incorporation of sodium  $\beta$ -glycerophosphate in M16 medium increased the buffering capacity of the medium. The new medium, named M17, led to an increase in the development of lactic streptococci, which are bacteria producing large quantities of acid via the homofermentative metabolism of lactose.

Lactic Streptococci are nutritionally fastidious and require complex media for optimal growth. 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 enzymic hydrolysate, papaic digest of soyabean meal, yeast extract, beef extract, provide carbonaceous, nitrogenous compounds, vitamin B complex and other essential growth



## PRODUCT DATA SHEET

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.

Shankar and Davies reported isolation and enumeration of *Streptococcus thermophilus* from yoghurt. Disodium glycerophosphate suppresses *Lactobacillus bulgaricus*.

### Interpretation

Cultural characteristics observed after inoculation ( $10^3$  CFU/ml) and incubation at 35 - 37°C for 24 - 48 hours.

Microorganisms	ATCC	Inoculum (CFU)	Growth
<i>Enterococcus faecalis</i>	29212	$10^3$	Luxuriant
<i>Lactobacillus leichmannii</i>	4797	$10^3$	Luxuriant
<i>Streptococcus thermophilus</i>	14485	$10^3$	Luxuriant
<i>Lactobacillus plantarum</i>	8014	$10^3$	Luxuriant
<i>Lactobacillus bulgaricus</i>	11842	$10^3$	None-poor

### References

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.