



L. S. Differential Medium Base

M582

L. S. (Lactobacillus Streptococcus) Differential Medium Base is used for the differentiation of Streptococci and Lactobacilli on the basis of colonial morphology, T.T.C. reduction and casein reaction.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	10.000
Papaic digest of soyabean meal	5.000
Beef extract	5.000
Yeast extract	5.000
Dextrose	20.000
Sodium chloride	5.000
L-Cysteine hydrochloride	0.300
Agar	15.000
Final pH (at 25°C)	6.1±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 65.3 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 50°C and aseptically add the following sterile solutions previously kept warm at 50°C just prior to use;

- (1) 100 ml of 10% w/v aqueous solution of antibiotic-free skim milk powder sterilized at 15 lbs pressure (121°C) for 5 minutes.
- (2) 10 ml of 2, 3, 5-Triphenyl-Tetrazolium Chloride (T.T.C.) (FD057) Solution. Mix well and pour into sterile Petri plates.

Principle And Interpretation

L. S. (Lactobacillus Streptococcus) Differential Medium is used to differentiate *Lactobacillus* and *Streptococcus*. L. S. Medium is prepared according to the formulation of Eloy and Lacrosse (4) and is a selective medium that supports good growth and differentiation of thermophilic lactobacilli and streptococci in yoghurt products (5). Yoghurt is a fermented milk product in which *Streptococcus thermophilus* and *Lactobacillus bulgaricus* are the essential microbial species and are active in a symbiotic relationship. A ratio of 1:1 is recommended by various workers (1, 2, 3). The reduction of triphenyl tetrazolium chloride in connection with the casein reaction allows differentiation between lactobacilli and streptococci by means of colony morphology (6).

The medium contains casein enzymic hydrolysate, L-cysteine hydrochloride, papaic digest of soyabean meal, beef extract and yeast extract as sources of carbon, nitrogen, vitamins and minerals. Sodium chloride helps in maintaining osmotic balance.

Test samples of yoghurt or starter cultures are added to melted and cooled L.S. Differential Medium Base. These are mixed thoroughly and plates are poured. The plates are incubated at 43°C for 48 hours.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Light yellow coloured opalescent gel forms in Petri plates

Reaction

Reaction of 6.53% w/v aqueous solution at 25°C. pH : 6.1±0.2

pH

5.90-6.30

Cultural Response

M582: Cultural characteristics observed with added antibiotic free skim milk powder and 1% T.T.C.(FD057), after an incubation at 43-45°C for 48 hours.

Organism	Colony characteristics
<i>Lactobacillus bulgaricus</i> ATCC 11842	red, rhizoidal, surrounded by opaque zone
<i>Streptococcus thermophilus</i> ATCC 14485	red, smooth, surrounded by clear zone

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. Pette J. W. and Lolkema H., 1950, Neth. Milk Dairy J., 4:261.
2. Stocklin P., 1969, Cultured Dairy Prod. J., 4 (3), 6.
3. Sellars R. L. and Babel F. J., 1970, Cultures for the Manufacture of Dairy Products, Chr. Hanssens Laboratory, Inc., Milwaukee, Wis.
4. Eloy C. and Lacrosse R., 1976, Bull. Rech. Agron Gembloux, 11(1-2):83.
5. Revter G., 1985, Int. J. Food Microbiol., 2, 55-68
6. Corry J. E. L., Curtis G. D. W., and Baird R. M., Culture Media for Food Microbiology, Vol. 34, Progress in Industrial Microbiology, 1995, Elsevier, Amsterdam.

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