Technical Information

L. S. Differential Medium Base

Product Code: DM 1582

Application: - 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 (25°C)	6.1±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & 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 act as selective medium that supports good growth and make differentiation of thermophilic lactobacilli and streptococci in yoghurt products [5]. Yoghurt is a fermented milk product in which *Streptococcus therm ophillus* 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- 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.

Methodology

Suspend 65.3 grams of powder media in 1000 ml distilled water. Shake well & heat 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 previ ously 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.) (MS2057) Solution.Mix well and pour into sterile Petri plates.

Quality Control

Physical 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 range 5.90-6.30

Cultural Response/ characteristices
DM 1582: Cultural characteristics observed with added antibiotic free skim milk powder and 1% T.T.C.(MS2057), after an incubation at 43-45°C for 48 hours.

Organism	Colony characteristics
Lactobacillus bulgaricus ATCC 11842	red,rhizoidal, surrounded by opaque zone
Streptococcus therm ophilus ATCC 14485	red,rhizoidal, surrounded by clear zone

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8^{o} in sealable plastic bags for 2-5 days.

Further Reading

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. Hansenss Laboratory, Inc., Milwanke e, Wis.
4. Eloy C. and Lacrosse R., 1976, Bull. Rech. Agron Gembloux,1 1(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 Microb iology, 1995, Elsevier, Amsterdam.

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