Technical Information

L.S. Differential MiVeg Medium Base

Product Code : VM1582

Application:- L.S. (Lactobacillus Streptococcus) Differential MiVeg Medium Base is recommended to differentiate *Lactobacilli* and *Streptococci* based on colonial morphology, T.T.C. reduction and Casein reaction.

Composition

Ingredients	Gms / Litre
MiVeg hydrolysate	10.0
Papaic digest of soyabean meal	5.0
MiVeg extract	5.0
Yeast extract	5.0
Dextrose	20.0
Sodium chloride	5.0
L-Cysteine hydrochloride	0.3
Agar	15.0
Final pH (at 25°C)	6.1 ± 0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

L.S. (Lactobacillus Streptococcus) Differential MiVeg Medium Base is prepared by adding MiVeg hydrolysate and MiVeg extract, instead of Casein enzymic hydrolysate and Beef extract respectively thus making the medium BSE/TSE risk free. This medium is the modification of L.S. Differential Medium Base developed by Eloy and Lacrosse (1) for the isolation and differentiation of *Lactobacilli* and *Streptococci* in yoghurt. Yoghurt is manufactured by controlled fermentation of milk held at 43°C using a starter culture of *Streptococcus thermophilus* and *Lactobacillus bulgaricus*. These two organisms have a complementary relationship. *Lactobacilli* grows best under low redox potential condition, which can be brought by first growing *Streptococci* and in turn it favours *lactobacilli* to multiply. *Lactobacilli* produce certain products, while stimulates the growth of *Streptococci* and also helps to add characteristic flavours to yoghurt.

The ratio of *Streptococci* and *Lactobacilli* in the starter culture and in the finished product controls the important factors such as flavour and acidity. A ratio of 1:1 has been recommended by several workers (3, 4, 5). Samples of yoghurt or starter cultures are added to melted and cooled L.S. Differential MiVeg Medium Base, mixed thoroughly and plates are poured. The plates are incubated at 43°C for 48 hours. Both, Total viable counts and Differential counts can be studied.

Methodology

Suspend 65.3 grams of powder media in 890 ml distilled water. Mix thoroughly and heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 50°C, then add (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

Light yellow coloured, may have slightly greenish tinge, 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 is pH 6.1 ± 0.2 at 25°C.

pH Range

5.9 - 6.3

Cultural Response/Characteristics

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

Organisms (ATCC)	Colony characteristics
****** *Streptococcus thermophilus* (14485)	red, smooth, surrounded by clearzone
***** *Lactobacillus bulgaricus* (41842)	red, rhizoidal, surrounded byopaque zone

Key : * = surrounded by opaque zone
** = 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: 2-8^0 in sealable plastic bags for 2-5 day.

Further Reading

1. Eloy C. and Lacrosse R., 1976, Bull. Rech. Agron Gembloux, 11(1-2):83.
2. Davis J.G., Ashton T.F. and McCaskill M., 1971, Dairy Ind., 36:569.
3. Pette J.W. and Lolkema H., 1950, Neth. Milk Dairy J., 4:261.
4. Stocklin P., 1969, Cultured Dairy Prod. J., 4 (3), 6.
5. Sellars R.L. and Babel F. J., 1970, "Cultures for the Manufacture of Dairy Products", Chr. Hansens's Laboratory, Inc., Milwankee, Wis.

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