

Technical Information

Streptococcus Thermophilus Isolation MiVeg Agar

Product Code : VM1948

Application:- Streptococcus Thermophilus Isolation MiVeg Agar is recommended for determining the ratio of *Streptococcus thermophilus* and *Lactobacillus bulgaricus* in yoghurt.

Composition**

Ingredients	Gms / Litre
MiVeg hydrolysate	10.0
Yeast extract	5.0
Sucrose	10.0
Dipotassium phosphate	2.0
Agar	15.0
Final pH (at 25°C)	6.8 ± 0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

Streptococcus Thermophilus Isolation MiVeg Agar is prepared by adding MiVeg hydrolysate instead of Casein enzymic hydrolysate thereby making the medium BSE/TSE risks free. This medium is the modification of Streptococcus Thermophilus Isolation Agar which is based on the formulation originally developed by Lee et al (1) and recommended by APHA (1) for isolation and determination of ratio of *Streptococcus thermophilus* and *Lactobacillus bulgaricus* in yoghurt. Both these species play crucial role in fermentation of milk - yoghurt and are active in a symbiotic relationship. Dominance of either species can cause defects in the yoghurt production by affecting its consistency, flavour and odour etc., thus equal numbers of both the species should be maintained to get desirable yoghurt.

Streptococcus thermophilus can readily ferment sucrose which is otherwise not fermented by *Lactobacillus bulgaricus*. At pH 6.8, restricted growth of *Lactobacillus bulgaricus* is seen on this medium (3) whereas *Streptococcus thermophilus* grows well. The former grow as tiny white cottony colonies as against the discrete colonies of the latter. *Bifidobacterium* if present in yogurt does not grow on this medium if incubated aerobically. For easy differentiation, often Bromocresol purple may be added to the medium. However, if lactose is added to this medium it is utilized by both the species. Yet another media was devised by Lee (1) with sucrose, lactose and added Bromocresol purple to differentiate between these species. With a suitable combination of sucrose and lactose, the rate of acid production by *Streptococcus thermophilus* is enhanced while that of *Lactobacillus* is restricted. However, later on Dirriessen et al (4) reported two separate media to enumerate cocci and rods respectively from mixed cultures.

MiVeg hydrolysate and yeast extract supplies nitrogenous nutrients, vitamin B complex and trace elements for the growth of *Streptococcus thermophilus*. Dipotassium phosphate maintains the pH imbalance of the medium.

Methodology

Suspend 42 grams of powder media in 1000 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 and pour aseptically in sterile petriplate.

Quality Control

Physical Appearance

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, clear to slightly opalescent gel forms in petri plates.

Reaction

Reaction of 4.2 % w/v aqueous solution is pH 6.8 ± 0.2 at 25°C.

pH Range

6.6-7.0

Cultural Response/Characteristics

Cultural characteristics observed after an incubation at 35-37°C for 48-72 hours.

Organisms (ATCC)	Inoculum (CFU)	Growth
<i>Lactobacillus bulgaricus</i> (11842)	10^2 - 10^3	Luxuriant
<i>Streptococcus thermophilus</i> (14486)	10^2 - 10^3	Luxuriant

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° in sealable plastic bags for 2-5 day.

Further Reading

1. Lee S.Y., Vedamuthu E.R., Washam C.J. and Reinbold G.W., 1974, J. Milk Food Technol., 37:272.
2. Vanderzant C. and Splittstoesser D. (Eds.), 1992, Compendium of Methods for the Microbiological Examination of Foods, 3rd ed., APHA, Washington, D.C.
3. Dave, R.I and Shah, N.P. 1996, J. Dairy Science Vol 79: No.9:1529.
4. Driessen F.M., Ubbels J. and Stadhouders J., 1977, Biotechnol. Bioeng., 19:821.

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