

Streptococcus Thermophilus Isolation HiVeg™ Agar

MV948

Streptococcus Thermophilus Isolation HiVeg Agar is recommended for determining the ratio of *Streptococcus thermophilus* and *Lactobacillus bulgaricus* in yoghurt.

Composition ** :

Ingredients	Grams/Litre
HiVeg 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.

Directions :

Suspend 42 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15minutes.

Principle and Interpretation :

Streptococcus Thermophilus Isolation HiVeg Agar is prepared by using HiVeg hydrolysate which is free from BSE/TSE risks. Streptococcus Thermophilus Isolation HiVeg Agar 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 are essential in fermentation of milk - yoghurt and are active in a symbiotic relationship. Dominance of either species can cause defects in the yoghurt affecting its consistency, flavour and odour etc. Equal numbers of both the species produce desirable yoghurt.

The medium contains sucrose, which is not fermented by majority of the *Lactobacillus bulgaricus* strains but is readily utilized by *Streptococcus thermophilus*. At pH 6.8, restricted growth of *Lactobacillus bulgaricus* is seen on this medium (3) where as *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 incorporated in 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 Driessen et al (4) reported two separate media to enumerate cocci and rods respectively from mixed cultures.

Product Profile :

Vegetable based (Code MV) ©		Animal based (Code M)	
MV948 HiVeg hydrolysate		M948 Casein enzymic hydrolysate	
Recommended for	:	Determining the ratio of <i>Streptococcus thermophilus</i> and <i>Lactobacillus bulgaricus</i> in yoghurt.	
Reconstitution	:	42.0 g/l	
Quantity on preparation (500g)	:	11.90 L	
pH (25°C)	:	6.8 ± 0.2	
Supplement	:	None	
Sterilization	:	121°C / 15 minutes.	
Storage	:	Dry Medium - Below 30°C, Prepared Medium 2 - 8°C.	

HiVeg hydrolysate and yeast extract provide nitrogenous nutrients, vitamin B complex and trace elements for the growth of *Streptococcus thermophilus*. Dipotassium phosphate prevents pH imbalance in the medium.

Quality Control :**Appearance of powder**

Yellow coloured, may have slightly greenish tinge, homogeneous, free flowing powder.

Gelling

Firm, comparable with 1.5% Agar gel.

Colour and Clarity

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.

Cultural Response

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

References :

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