Technical Information

Streptococcus Thermophilus Isolation Agar

Product Code: DM 1948

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

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	10.000
Yeast extract	5.000
Sucrose	10.000
Dipotassium phosphate	2.000
Agar	15.000
Final pH (at 25°C)	6.8±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Yoghurt is a fermented milk in which *Streptococcus thermophilus* and *Lactobacillus bulgaricus* are the essential microbial species and are active in a symbiotic relationship. To obtain optimum consistency, flavour and odour, the two species should be present in almost equal numbers in the culture. Dominance by either species can cause defects in yoghurt where as equal numbers of both the species produce desirable end product.

Streptococcus Thermophilus Isolation Agar, recommended by APHA [(1),] is used for determining the ratio of *S. thermophilus* and *L. bulgaricus* in yoghurt.

Streptococcus Thermophilus Isolation Agar is based on the formulation described by Lee et al [(2).] However later on Driessen et al [(3)] reported two separate media to enumerate cocci and rods respectively from mixed cultures where *S. thermophilus* is grown on Streptococcus Thermophilus Isolation Agar (DM1948) and *L. bulgaricus* is cultivated on Lactococcus Bulgaricus Agar (LB Agar, DM1927).

The medium contains sucrose, which is not fermented by majority of the *L. bulgaricus* strains but is readily utilized by *S. thermophilus* . However if lactose is incorporated in this medium it is utilized by both the species. With a suitable combination of sucrose and lactose, the rate of acid production by *S. thermophilus* is enhanced while that of *L. bulgaricus* is restricted. Casein enzymic hydrolysate and yeast extract provide nitrogenous nutrients, vitamin B complex and trace elements for the growth of *S. thermophilus* . Dipotassium phosphate prevents pH imbalance in the medium.

Methodology

Suspend 42 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.

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 clear to slightly opalescent gel forms in Petri plates

Reaction

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

pH range

6.60-7.00

Cultural Response/Characteristics

DM 1948: Cultural characteristics observed after an incubation at 35-37°C for 48-24 hours.

Organism	Inoculum(CFU)	Growth	Recovery
Lactobacillus bulgaricus ATCC 11842	50-100	good-luxuriant	>=50%
Streptococcus therm ophilus ATCC 14485	50-100	good-luxuriant	>=50%

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 days.

Further Reading

1. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C.
2. Lee S. Y., Vedamuthu E. R., Washam C. J. and Reinbold G. W., 1974, J. Milk Food Technol., 37:272.
3. Driessen F. M., Ubbels J. and Stadhouders J., 1977, Biotechnol. Bioeng., 19:821.

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