ESTY Medium

Cat. 1555

Selective medium for the enumeration of Streptococcus thermophilus in yogurt

Practical information

Aplications	Categories
Selective enumeration	Streptococcus
Selective isolation	Streptococcus

Industry: Dairy products

Principles and uses

ESTY Medium is a medium recommended for the growth of lactic streptococci and their bacteriophages from yogurt and other dairy products.

This medium is recommended for Streptococcus thermophilus isolation and enumeration in yogurt. Lactic streptococci produce acid and are difficult to grow. They are nutritionally fastidious and demand complex culture media for an optimum growth. Glycerophosphate present in high concentrations acts as a pH regulator and inhibits Lactobacillus bulgaricus development while the ascorbic acid promotes the growth of lactic streptococci. It is recommended for the maintenance of the initial cultures, where this microorganisms produce acids in their metabolism.

Beef extract, tryptone and soy peptone provide nitrogen, vitamins, minerals and amino acids essential for growth. Yeast extract is a source of vitamins, particularly of the B-group. Disodium glycerophosphate is a buffering agent. Ascorbic acid promotes the growth of Lactic Streptococci. Magnesium sulphate provides ions required in a large variation of enzymatic reactions, including DNA replication, and also acts as a buffer. Bacteriological agar is the solidifying agent.

Formula in g/L

Ascorbic acid	0,5	Bacteriological agar	11
Beef extract	5	Disodium glycerophosphate	19
Magnesium sulfate	0,25	Soy peptone	5
Tryptone	5	Yeast extract	2,5

Preparation

Suspend 45,83 grams of the medium in 950 ml of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Sterilize in autoclave at 121 ºC for 15 minutes. Cool to 45-50 ºC and aseptically add 5 grams of lactose (Cat. 1905), previously reconstituted in 50 ml of distilled water. Sterilize lactose solution by membrane filtration. Homogenize gently and dispense into Petri dishes.

Instructions for use

Streak plate method:
- In a Petri dish, add 12-15 ml of molten agar and let it solidify.
- Inoculate 10 µl of the initial suspension and/or diluted sample.
- Extend the inoculum with a sterile loop on the agar surface.
- Incubate the plates in an inverted position at a temperature of 35±2 ºC for 24-48 hours.

Quality control

Solubility	Appearance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25ºC)
w/o rests	Fine powder	Beige	Amber	6,9±0,2

Microbiological test

Incubation conditions: (35±2 ºC / 24-48 h)

Microrganisms	Specification
Lactobacillus bulgaricus ATCC 11842	Inhibited growth
Streptococcus thermophilus ATCC 14486	Good growth

Storage

Temp. Min.:2 ºC
Temp. Max.:25 ºC

Bibliography

Terzaghi, B.E. and W. E. Sandine. 1975 Improved medium for lactic streptococci and their bacteriophages. Appl. Microbiol 29:807-813.
International Dairy Federation 1981. Identification and enumeration of micro-organisms in fermented milks. Joint IDF/ISO/AOAC.