

ESTY Broth

For the cultivation of *Streptococcus thermophilus* in yogurt.

Practical information

Applications	Categories
Selective isolation	Streptococcus

Industry: Dairy products

Principles and uses

ESTY Broth 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 optimum growth. The 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 that 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 is a magnesium ion 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	Beef extract	5
Disodium glycerophosphate	19	Magnesium sulfate	0,25
Soy peptone	5	Tryptone	5
Yeast extract	2,5		

Preparation

Suspend 37,25 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. Dispense into appropriate containers and sterilize in autoclave at 121°C for 15 minutes. Cool to 45-50°C and aseptically add 5 grams of lactose (Cat. 1905), previously reconstituted in 50 ml of distilled water. Sterilize lactose solution by membrane filtration.

Instructions for use

- Inoculate with 1 ml of inoculum and incubate at $30 \pm 2^\circ\text{C}$ during 72 hours.
- For *Streptococcus thermophilus* at $35 \pm 2^\circ\text{C}$ during 24-48 hours.

Quality control

Solubility	Appearance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25°C)
w/o rests	Fine powder	Beige	Amber	$6,9 \pm 0,2$

Microbiological test

Incubation conditions: ($35 \pm 2^\circ\text{C}$ / 24-48 h)

Microrganisms	Specification
<i>Lactobacillus bulgaricus</i> ATCC 11842	Inhibited growth

Storage

Temp. Min.:2 °C
Temp. Max.:25 °C

Bibliography

Reiter B., and J.D. Oram. 1962. Nutritional studies on cheese starters. I. Vitamin and aminoacid requirements of single strain starters, J. Dairy Res. International Dairy Federation 1981 Identification and enumeration of microorganisms in fermented milks.

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