



Lactic Agar

M599

Intended Use:

Recommended for enumeration and identification of lactic Streptococci and Lactobacilli by pour plate method.

Composition**

Ingredients	Gms / Litre
Tryptone#	20.000
Yeast extract	5.000
Gelatin	2.500
Dextrose (Glucose)	5.000
Lactose	5.000
Saccharose (Sucrose)	5.000
Sodium chloride	4.000
Sodium acetate	1.500
Ascorbic acid	0.500
Agar	15.000

**Formula adjusted, standardized to suit performance parameters

Equivalent to Casein enzymic hydrolysate

Directions

Suspend 63.5 grams in 1000 ml purified/distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Lactic Agar was developed by Elliker et al (1) and recommended by APHA (6) for cultivation of lactic bacteria to promote the colony development of Lactobacilli and lactic Streptococci. Samples are analyzed by pour plate technique. Lactic acid bacteria are fastidious in nature and hence Lactic Agar is designed to satisfy their growth requirement. Lactic acid bacteria survive at low pH, but are very sensitive to other adverse conditions.

Samples to be examined for enumeration of viable lactic acid bacteria should not be frozen prior to analysis. Many of the lactic acid bacteria are easily killed or injured by freezing. For dilution of products it is best to use sterile 0.1% Peptone Water (M028) as the diluent since it protects bacteria during the dilution process (2,4).

Tryptone and yeast extract provide amino acids, other nitrogenous nutrients, vitamin B complex etc. Dextrose, lactose and sucrose are the fermentable carbohydrates. Ascorbic acid provides vitamin C required by lactic acid bacteria. Sodium chloride maintains the osmotic equilibrium of the medium. Sodium acetate inhibits contaminating bacteria and restricts the swarming of lactic acid bacteria. Upon incubation, the colonies are examined for gram staining and catalase production. Gram-positive, catalase-negative cocci or rods are tentatively considered to be lactic acid bacteria (6).

Type of specimen

Food samples

Specimen Collection and Handling:

For food samples, follow appropriate techniques for sample collection and processing as per guidelines (6). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. Samples to be examined for enumeration of viable lactic acid bacteria should not be frozen prior to analysis.
2. Some strains may show poor growth due to nutritional variations.
3. Further biochemical and serological testing is required for complete identification.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Yellow coloured clear to slightly opalescent gel forms in Petri plates

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery
<i>Lactobacillus bulgaricus</i> ATCC 11842 (00102*)	50-100	good-luxuriant	≥50%
<i>Lactobacillus casei</i> ATCC 9595	50-100	good-luxuriant	≥50%
<i>Lactobacillus lactis</i> ATCC 8000	50-100	good-luxuriant	≥50%
<i>Streptococcus cremoris</i> ATCC 19257	50-100	good-luxuriant	≥50%
<i>Streptococcus thermophilus</i> ATCC 14485	50-100	good-luxuriant	≥50%

Key : (*) Corresponding WDCM numbers.

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (3,5).

Reference

1. Elliker P. R., Anderson A. W. and Hanesson G., 1956, J. Dairy Science, 39:1611.
2. Hartman P. A., and Huntsberger D. V., 1961, Appl. Microbiol., 9-32
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
4. Jayne-Williams D. J., 1963, J. Appl. Bacteriol., 26:398
5. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
6. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.

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Disclaimer :

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