Lactic Bacteria Differential Broth

M1086

Intended Use:

Recommended for differentiation of homofermentative and heterofermentative lactic acid bacteria.

Composition**

Ingredients	Gms / Litre
Tryptone	10.000
Soya petone	1.500
Acicase™	3.000
Yeast extract	1.000
Fructose	2.500
Potassium dihydrogen phosphate	2.500
Bromocresol green	0.055
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters
Equivalent to Casein acid hydrolysate

Directions

Suspend 20.55 grams in 1000 ml purified / distilled water. Add 1 gram of polysorbate 80. Heat if necessary to dissolve the medium completely. Dispense into tubes or flasks as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and dispense as desired.

Principle And Interpretation

Lactic Bacteria Differential Broth is formulated as per McDonald et al (4) for differentiation of homofermentative Lactobacilli and heterofermentative Streptococci. Lactobacilli and Streptococci are used as starter cultures in food and dairy industry. Streptococci grow first and produce metabolites, lowering redox potential which enables Lactobacilli to grow. Lactobacilli synthesize products which stimulate growth of Streptococci.

Medium constituents like Acicase™, soya peptone and yeast extract supplies nitrogen and carbon compounds, long chain amino acids,vitamins and other essential growth nutrients for the growth of lactic bacteria. Fructose is the fermentable carbohydrate in the medium. Bromo cresol green is the pH indicator.

Heterofermentative lactic acid bacteria produce CO_2, lactic acid, acetic acid, ethanol and mannitol. Homofermentative lactic acid bacteria produce only lactic acid. Homofermentative lactic acid bacteria produce lactic acid from fructose and is indicated by yellow colour formation. Heterofermentative lactic acid bacteria induce lesser acidification and thus vary in the colour formation by the indicator in the medium

Type of specimen

Isolated Microorganism from food and dairy samples

Specimen Collection and Handling

For food and dairy samples follow appropriate techniques for handling specimens as per established guidelines (1,5,6). 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 specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. For proper identification well isolated colonies must be used.
2. Some species may show poor growth due to nutritional variations.

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
Light yellow to bluish grey homogeneous free flowing powder

Colour and Clarity of prepared medium
Blue coloured clear solution in tubes

Reaction
Reaction of 2.05% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH
6.80-7.20

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

Organism	Inoculum (CFU)	Growth	Colour of medium
Lactobacillus casei ATCC 9595	50-100	luxuriant	green
Lactobacillus plantarum ATCC 8014	50-100	luxuriant	green
Streptococcus cremoris ATCC 19257	50-100	luxuriant (incubated at 30°C)	blue
Streptococcus thermophilus ATCC 14485	50-100	luxuriant (incubated at 45°C)	bluish-green

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 15-25°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 (2,3).

Reference

1. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed.,Washington D.C.
2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition
3. 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.
4. McDonald L.C., McFecters R.F., Daeschel M.A. and Fleming H.P., 1987, Appl. Environ. Microbiol., 53:138
5. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
6. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed.,APHA Inc., Washington, D.C.

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