Technical Information

Lactobacillus Bulgaricus Agar Base

Product Cod: DM 1927

Application: - Lactobacillus Bulgaricus Agar with acetate buffer is used for isolation and identification of *Lactobacillus bulgaricus*

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	10.000
Yeast extract	5.000
Beef extract	10.000
Dextrose	20.000
Dipotassium phosphate	2.000
Tomato juice	2.000
Polysorbate 80	1.000
Agar	20.000
Final pH (at 25°C)	6.8±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Lactobacillus bulgaricus (Lactobacillus delbrueckii subsp. *bulgaricus)* is one of several bacteria used for the production of Kisselo mlyako (Bulgarian) - "Sour milk" yoghurt (yogurt). Bulgarian doctor Stamen Grigorov was the first to identifie the bacterium in 1905 It is named after Bulgaria, the country where it was first used The bacterium feeds on milk and produces lactic acid which also helps to preserve the milk. Lactobacillus Bulgaricus Agar was originally formulated by Kulp and White [(1)] for the recovery of Lactobacilli. Further modification of this media is recommended by APHA [(2)] for isolation and identification of *L. bulgaricus* from foods. *Streptococcus thermophilus* and *L. bulgaricus* are the essential microbial species and are active in symbiotic relationship in yoghurt. Therefore techniques are needed to determine the relative proportions of *S. thermophilus* and *L. bulgaricus* when grown together in milk cultures.

Casein enzymic hydrolysate, yeast extract and beef extract in the medium provide nitrogenous compounds, minerals, vitamins and trace ingredients. Polysorbate 80 supplies fatty acids required for the metabolism of Lactobacilli. Dextrose is the fermentable carbohydrate. Tomato juice along with acetate maintains the low pH of the medium and thus inhibits microorganisms other than Lactobacilli. Acetate also restricts the swarming of *L. bulgaricus* and along with dipotassium phosphate forms the buffering system.

Methodology

Suspend 70 grams of powder media in 920 ml distilled water and mix well heat to dissolve the medium completely. Add 80 ml Acetate Buffer (11.355% Sodium acetate and 0.99% Acetic acid). Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. DO NOT OVERHEAT THE MEDIUM. Mix well and pour into sterile Petri plates.

Quality Control

Physical Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 2.0% agar gel.

Colour and Clarity of prepared medium

Medium amber coloured, clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of the medium (7% w/v aqueous solution of base containing 8%v/v acetate buffer) at 25°C. pH : 6.8±0.2

pH Range 6.60-7.00

Cultural Response/Characteristics

DM 1927: Cultural characteristics observed with added acetate buffer, after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery
Lactobacillus bulgaricus ATCC 11842	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. Kulp W. L. and White V., 1932, Science, 76:17.

2. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C.

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