Technical Information

Milk Agar

Product Code: DM 1163

Application: Milk Agar is recommended for enumeration of bacteria in milk and milk products, rinse waters, ice creams etc.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	5.000
Yeast extract	3.000
Milk solids	1.000
Agar	15.000
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

The milk from an uninfected cow's udder is sterile. Contamination of this milk takes place during milking, cooling and storage [1]. Milk is an excellent medium for bacteria, yeast and moulds. Their rapid growth of these organisms can cause marked deterioration, & spoiling the milk for consumption or manufacture of dairy products. Human can get infection by consumption of such contaminated milk or milk products. Milk Agar is recommended for performing plate count tests on milk, rinse waters and dairy products. It is formulated as per the official medium described by Department of Health Memo [2]. It is also recommended by EUROGLACE (EEC Ice Cream Industries) for the examination of ice cream [3].

Peptic digest of animal tissue and yeast extract provide essential nutrients while milk solids are a source of casein. Dextrose is the carbon and energy source. Proteolytic bacteria will be surrounded by a clear zone, due to the conversion of casein into soluble nitrogenous compounds [4].

For milk, dilutions of 1/10, 1/100 and 1/1000 are prepared with 1/4 strength Ringer solution. 1 ml of each dilution is pipetted aseptically into sterile Petri plates to which 10 ml of sterile and cooled Milk Agar is added and mixed well. Plates should be poured within 15 minutes of dilution preparation. After solidification of medium the plates are allowed to stand for 1 hour before transferring to the incubator. Incubate at 35°C for 2 or 3 days at 3 0°C. Higher counts may be obtained after incubation at 22°C and 30°C temperature rather than at 35°C [5, 6, 7]. Count the colonies within 4 hours after the incubation and read it as per ml of sample.

Methodology

Suspend 24 grams of powder media in 1000 ml distilled water. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well and pour into sterile Petri plates.

Quality Control

Physical Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Light yellow coloured slightly opalescent gel forms in Petri plates

Reaction
Reaction of 2.4% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH Range:- 7.00-7.40

Cultural Response/Characteristics
DM 1163: Cultural characteristics observed after an incubation at 35 - 37°C for 18 - 48 hours.

Organism	Inoculum (CFU)	Growth	Growth	Recovery
Bacillus subtilis ATCC 6633	50-100	Luxuriant	good-luxuriant	>=70%
Pseudomonas aeruginosa ATCC 27853	50-100	Luxuriant	good-luxuriant	>=70%
Lactobacilus casei ATCC 9595	50-100	Luxuriant	good-luxuriant	>=70%
Staphylococcus aureus ATCC 25923	50-100	Luxuriant	good-luxuriant	>=70%
Serratia marcescens ATCC 8100	50-100	Luxuriant	good-luxuriant	>=70%

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. Collee J. G., Fraser A. G., Marimon B. P., Simmons A., (Eds.), Mackie and McCartney, Practical Medical Microbiology, 1996, 14th Edition, Churchill Livingstone.
2. Dept. of Health, 1987, Memo. 139/Foods.
3. Klose J., 1968, Susswaren, 14:778.
4. Methods of Microbiological Examination for Dairy Purposes, Diluents, Media and Apparatus and their Preparation and Sterilization, BS4285, Sec. 1.2.
5. Davis J. G., 1959, Milk Testing, 2nd Ed., Dairy Industries Ltd., London, Pg. 175.
6. Thomas S. B. and Jenkins E., 1940, Proc. Soc. Appl. Agric., 38:40.
7. Wilson G. S., 1935, Bacteriological Grading of Milk, HMSO, London.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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