

Technical Data

MUG Plate Count Agar

M1194

Intended Use:

Recommended for determination of plate count of microorganisms in milk and other dairy products by fluorogenic method. **Composition****

Ingredients	g / L
Tryptone	5.000
Yeast extract	2.500
Dextrose (Glucose)	1.000
4-Methylumbelliferyl β-D-Glucuronide (MUG)	0.100
Agar	15.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 23.6 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Plate Count Agar is a general-purpose cultivation medium used for a wide variety of organisms and is recommended by APHA (1,2,3) and AOAC (4).

MUG Plate Count Agar, which is Plate Count Agar supplemented with MUG, is used for determining plate count of microorganisms in milk and other dairy products by fluorogenic method. The medium does not contain any inhibitor or pH indicator. It is used to determine the total microbial count of milk, dairy products (2), water (1) and other materials. Organism

like Escherichia coli can be identified by the formation of fluorescent colonies visualized on exposure to UV light (366nm).

Tryptone, yeast extract provide nitrogenous compounds and vitamin B complex. Dextrose serves as energy source. MUG is cleaved by the enzyme ß-glucuronidase to release 4-methylumbelliferone, which produces a visible fluorescence under long wave UV light.

Type of specimen

Milk and dairy samples

Specimen Collection and Handling

For milk and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (5). 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. Some strains of E. coli, however, are MUG-negative and do not fluoresce under UV light.

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.

Reaction

Reaction of 2.36% w/v aqueous solution at 25°C. pH : 7.0±0.2

pН

6.80-7.20

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Fluorescence (under UV)	Recovery
Escherichia coli ATCC 25922 (00013*)	50-100	luxuriant	positive	>=70%
Staphylococcus aureus subsp. aureus ATCC 25923 (00034*)	50-100	luxuriant	negative	>=70%
** Bacillus spizizenii ATCC 6633 (00003*)	50-100	luxuriant	negative	>=70%
Streptococcus pyogenes ATCC 19615	50-100	luxuriant	negative	>=70%
Enterococcus faecalis ATCC 29212 (00087*)	50-100	luxuriant	negative	>=70%
Lactobacillus rhamnosus ATCC 9595	50-100	luxuriant	negative	>=70%

Key : (*) Corresponding WDCM numbers. **Form

**Formerly known as *Bacillus subtilis* subsp. spizizenii

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. Use before expiry date on the label. 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 (6,7).

Reference

1.Greenberg A. E., Trussell R. R. and Clesceri L. S., (Eds.), 1985, Standard Methods for the Examination of Water and Wastewater, 16th Ed., APHA, Washington, D.C.

2.Richardson G., (Ed.), 1985, Standard Methods for the Examination of Dairy Products, 15th Ed., APHA, Washington, D.C. 3.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.

4.Horwitz, (Ed.), 2000, Official Methods of Analysis of AOAC International, 17th Ed. Vol. I, AOAC International, Gaithersburg, Md.

5.Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

6.Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.

7.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

Disclaimer :

User must ensure suitability of the product(s) in their application prior to use. Products conform solely to the information contained in this and other related HiMediaTM publications. The information contained in this publication is based on our research and development work and is to the best of our knowledge true and accurate. HiMediaTM Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are not intended for human or animal or therapeutic use but for laboratory, diagnostic, research or further manufacturing use only, unless otherwise specified. Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.

HiMedia Laboratories Pvt. Ltd. Corporate Office : Plot No.C-40, Road No.21Y, MIDC, Wagle Industrial Area, Thane (W) - 400604, India. Customer care No.: 022-6147 1919 Email: techhelp@himedialabs.com Website: www.himedialabs.com