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	Gms / Litre
Tryptone	5.000
Yeast extract	2.500
Dextrose (Glucose)	1.000
4-Methylumbelliferyl ß-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 purified / distilled water. Heat gently to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Pour in 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 (1), water (2) 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 (1,2,8). 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.

1. This medium is general purpose medium and may not support the growth of fastidious

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

pH
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 ATCC25922	50-100	luxuriant	positive	>=70%
Staphylococcus aureus ATCC 25923	50-100	luxuriant	negative	>=70%
Bacillus subtilis ATCC 6633	50-100	luxuriant	negative	>=70%
Streptococcus pyogenes ATCC 19615	50-100	luxuriant	negative	>=70%
Enterococcus faecalis ATCC 29212	50-100	luxuriant	negative	>=70%
Lactobacillus casei ATCC 9595	50-100	luxuriant	negative	>=70%

Reference

1.Richardson G., (Ed.), 1985, Standard Methods for the Examination of Dairy Products, 15th Ed., APHA, Washington, D.C.
2.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.
3.Downes F.P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th 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.

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