



MUG Plate Count Agar

M1194

MUG Plate Count Agar is used for determination of plate count of microorganisms in milk and other dairy products by fluorogenic method.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	5.000
Yeast extract	2.500
Dextrose	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 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).

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

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

M1194: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Fluorescence (under UV)	Recovery
Cultural Response				
<i>Escherichia coli</i> ATCC25922	50-100	luxuriant	positive	≥70%
<i>Staphylococcus aureus</i> ATCC 25923	50-100	luxuriant	negative	≥70%

<i>Bacillus subtilis</i> ATCC 6633	50-100	luxuriant	negative	>=70%
<i>Streptococcus pyogenes</i>	50-100	luxuriant	negative	>=70%
ATCC 19615				
<i>Enterococcus faecalis</i> ATCC	50-100	luxuriant	negative	>=70%
29212				
<i>Lactobacillus casei</i> ATCC	50-100	luxuriant	negative	>=70%
9595				

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

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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