Fluorocult® Lauryl Sulfate Broth

LST-MUG Medium

The medium complies with the German-DIN-Norm 10183 for the examination of milk, with the regulations acc. to § 35 LMBG (01.00/54) for the examination of food, and acc. to ISO/DIS 11886 - 2.2 (1994) for milk and milk products. Furthermore to the German Badegewässerverordnung (regulations for bathing water) 76/1604 EWG (1995).

Mode of Action

The lauryl sulfate largely inhibits the growth of undesirable microbial flora. The presence of E. coli is indicated by fluorescence under a long wavelength UV lamp. A positive indole reaction and gas formation due to fermentation of lactose confirm the results.

SCHINDLER (1991) recommended the use of this medium in the quality control of bathing water.

Typical Composition (g/litre)

Tryptose 20.0; lactose 5.0; sodium chloride 5.0; sodium lauryl sulfate 0.1; di-potassium hydrogen phosphate 2.75; potassuim dihydrogen phosphate 2.75; L-tryptophan 1.0; 4-methylumbelliferyl-β-D-glucuronide 0.1.

Preparation

Suspend 36.5 g/litre, fill in test tubes fitted with DURHAM tubes; autoclave (15 min at 121 °C).

pH: 6.8 ± 0.2 at 25 °C.

The prepared broth is clear and yellowish-brown.

Experimental Procedure and Evaluation

The culture medium is used in the usual manner. Inoculate the tubes using at least 1 ml of broth.

Incubation: 16-24 hours at 35 °C aerobically according to instructions.

Check the tubes under UV light (366 nm). Light blue fluorescence indicates the presence of E. coli.

If fluorescence is negative after 24 hours of incubation do not add KOVACS reagent to check indole reaction (this alcoholic reagent destroys the growth conditions in the medium). Continue incubation for another 24 hours. Then check for fluorescence and indole reaction.

To confirm detection, cover the culture with a layer of KOVACS indole reagent of about 5 mm. If the reagent layer becomes cherry red after 1-2 minutes, the presence of E. coli is confirmed.

Gas formation in the DURHAM tube signifies that the culture contains E. coli and/or other coliform organisms.

Literature

SCHINDLER, P.R.G.: MUG-Laurylsulfat-Bouillon - ein optimales Nachweismedium für gesamtcoliforme und fäkalcoliforme Bakterien im Rahmen der hygienischen Überprüfung von Badegewässer gemäß der EG-Richtlinie 76/160 EWG. **- Zbl. Hyg., 191** ; 438-444 (1991).

Bundesgesundheitsamt: Amtliche Sammlung von Untersuchungsverfahren nach § 35 LMBG. - Beuth Verlag Berlin, Köln.

DIN Deutsches Institut für Normung e.V.: Mikrobiologische Milchuntersuchung. Bestimmung der Escherichia coli. Fluoreszenzoptisches Verfahren mit paralleler Bestimmung coliformer Keime. **DIN 10183**.

ISO/DIS 11886 - 2 (1997): Milk and milk products; Enumeration of presumptive E. coli-MPN technique using MUG.

New Zealand Dairy Industry: Microbiological Methods Manual, Section 48: Product Test Methods-Enteric Indicator Organisms. - NZTM2; 48.5.1-48.5.10 (1998).

Mikrobiologische Untersuchungsverfahren von Badegewässern nach Badegewässerrichtlinie 76/160/EWG: Nachweismethoden für fäkalcoliforme (E. coli) und gesamtcoliforme Bakterien. - Bundesgesundheitsblatt, 10; 385-396 (1995).

Ordering Information

Product	Merck Cat. No.	Pack size
Fluorocult® Lauryl Sulfate Broth	1.12588.0500	500 g
Bactident® Indole (dropper bottle)	1.11350.0001	1 x 30 ml
KOVÁCS Indole Reagent	1.09293.0100	100 ml
UV Lamp (366 nm)	1.13203.0001	1 ea

Quality control

Test strains	Growth	Fluorescence	Indole
Escherichia coli ATCC 25922	good / very good	+	+
Klebsiella pneumoniae ATCC 13883	good / very good	-	-
Enterobacter aerogenes ATCC 13048	good / very good	-	-
mixture of Escherichia coli ATCC 25922 and Enterobacter aerogenes ATCC 13048	good / very good	+	+
mixture of Escherichia coli ATCC 25922 and Klebsiella pneumoniae ATCC 13883	good / very good	+	+
Staphylococcus aureus ATCC 6538	none / poor		
Bacillus cereus ATCC 11778	none / poor		
Micrococcus luteus ATCC 10240	none / poor		