Leifson Agar

M1380

Intended use

Recommended for isolation of *Salmonella* and *Shigella* species from clinical and non-clinical samples.

Composition**

Ingredients	g / L
HM extract #	5.000
HM peptone $	5.000
Lactose	10.000
Sodium thiosulphate	5.400
Sodium citrate	6.000
Ferric citrate	1.000
Sodium deoxycholate	3.000
Neutral red	0.020
Agar	12.000
Final pH (at 25°C)	7.5±0.2

**Formula adjusted, standardized to suit performance parameters
#- Equivalent to Meat extract $ - Equivalent to Meat peptone

Directions

Suspend 47.42 grams in 1000 ml purified / distilled water. Heat to boiling to dissolve the medium completely. **DO NOT AUTOCLAVE OR OVERHEAT.** Excessive heating is detrimental. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Salmonella and *Shigella* are gram-negative, facultatively anaerobic, non-sporulating, non-motile rods in the family Enterobacteriaceae. They are widely distributed in animals affecting mainly the stomach and the intestines. Leifson Agar is recommended for isolation of *Salmonella* and *Shigella* species (1).

HM extract and HM peptone provides nitrogenous and carbonaceous compounds, long chain amino acids and other essential growth nutrients. Sodium deoxycholate inhibit all gram-positive bacteria. Lactose is added to the medium to allow differentiation of lactose fermenting bacteria such as *Escherichia coli* from non-lactose fermenting species such as *Salmonella* and *Shigella* species. Lactose fermenting strains grow as red to pink colonies because of absorption of neutral red indicator. Sodium thiosulphate and ferric citrate forms the H_2S indicator system. Non-fermenting species grow as colorless colonies with black centers due to production of H_2S against *Shigella* which does not produce H_2S (2).

Type of specimen

Clinical samples - faeces, ; Food and dairy samples; Water samples.

Specimen Collection and Handling:

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (3,4).
For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (5,6,7). For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(8). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

In Vitro diagnostic Use. For professional use only. 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 clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

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

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

Light yellow to pink homogeneous free flowing powder

Gelling

Firm, comparable with 1.2% Agar gel.

Colour and Clarity of prepared medium

Reddish orange coloured clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 4.74% w/v aqueous solution at 25°C. pH : 7.5±0.2

pH

7.30-7.70

Cultural Response

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

Organism	Inoculum (CFU)	Growth	Recovery	Colour of Colony	H_2S
Escherichia coli ATCC 25922 (00013*)	50-100	poor	10-20%	pink w/bile precipitate	negative reaction
Enterococcus faecalis ATCC 29212 (00087*)	>=10^4	inhibited	0 %		
Salmonella Enteritidis ATCC 13076 (00030*)	50-100	good-luxuriant	>=50%	colourless	positive reaction, black centred colonies
Shigella flexneri ATCC 12022 (00126*)	50-100	good	40-50%	colourless	negative reaction
Salmonella Typhimurium ATCC 14028 (00031*)	50-100	luxuriant	>=50%	colourless	positive reaction, black centred colonies

Key : *Corresponding WDCM numbers.

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 2-8°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. 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 clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (3,4).

Reference

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

4.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.

5.American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.
6.Greenberg A. E., Clesceri L. S. and Eaton A. D., (Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st ed., APHA, Washington, D.C.
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8.Lipps WC, Braun-Howland EB, Baxter TE,eds. Standard methods for the Examination of Water and Wastewater, 24th ed. Washington DC:APHA Press; 2023.

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IVD ***In vitro*** **diagnostic medical device**

30°C
10°C **Storage temperature**

EC REP CEpartner4U, Esdoornlaan 13,
3951DB Maarn, NL
www.cepartner4u.eu

CE Marking

Do not use if package is damaged

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