Technical Information

Leifson Agar

Product Code: DM 2380

Application: - Leifson Agar is used for isolation of *Salmonella* and *Shigella* species from clinical and non-clinical samples.

Composition**

Ingredients	Gms / Litre
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

#- Equivalent to Meat extract

$ - Equivalent to Meat peptone

Principle & Interpretation

Salmonella and *Shigella* are gram-negative, facultatively anaerobic, non-sporulating, non-motile ods 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).

Meat extract and meat peptone supply essential growth nutrients. Sodium deoxycholate enhance all gram-positive bacteria. Lactose is added to the medium to allow differentiation of lactose fermenting bacteria such as *Escherichia coli* from nonlactose 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 colourless colonies with black centres due to production of H_2S against *Shigella* which does not produce H_2S (2).aact and meat peptone provides nitrogeneous and carbonaceous compounds, long chain amino acids and other essenthich does not produce H_2S (2).

Type of specimen

Clinical samples - Blood ; Food and dairy samples ; Water samples

Specimen Collection and Handling:

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (4,5).

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (3,6,8).

For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(6) After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

In Vitro diagnostic 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 guidleines should be followed while handling clincal specimens. Saftey guidelines may be referred in individual safety data sheets

Limitations :
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.

Methodology

Suspend 47.42 grams of dehydrated powder media in 1000 ml distilled water. Mix thoroughly & heat to boil to dissolve the medium completely. DO NOT AUTOCLAVE OR OVERHEAT. Excessive heating is detrimental. Cool to 45-50°C. Shake well before pour into sterile Petri plates.

Quality Control

Appearance
Light yellow to pink homogeneous free flowing powder

Gelling
Firm, comparable with 1.2% Agar gel.

Colour and Clarity
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 Range
7.30-7.70

Cultural Response
DM2380: 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	50-100	poor	10-20%	pink w/bile Precipitate	negative reaction
Enterococcus faecalis ATCC 29212	>=10^3	inhibited	0 %	-	-
Salmonella Enteritidis ATCC 13076	50-100	good-luxuriant	>=50%	colourless	positive reaction, black centred Colonies
Shigella flexneri ATCC 12022	50-100	good	40-50%	colourless	negative reaction
Salmonella Typhimurium ATCC 14028	50-100	luxuriant	>=50%	colourless	positive reaction, black centred Colonies

Storage and Shelf Life

Dried Media: Store below 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 inorder 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 clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (4, 5).

Further Reading

1. Leifson, E., 1935, J. Pathol. Bacteriol., 40-581.

2. Macfaddin J. 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol.1. Williams and Wilkins, Baltimore.

3. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D. C. Isenberg, H. Dcal Microbiology Procedures Handb0ook. 2nd Edition.

4. Isenberg, H.D. Clinical Microbiology Procedures Handb0ook. 2nd Edition.

5. 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.

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.Wastewater, 21st ed., APHA, Washington, D.C.

7. Downes F. P. and Ito K., (Ed.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., American Public Health Association, Washington, D.C.

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

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
- The product conform solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at CDH is true and accurate
- Central Drug House 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 diagnostic or therapeutic use but for laboratory, research or further manufacturing of diagnostic reagents extra.
- 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. Do not use the products if it fails to meet specifications for identity and performance parameters.