Ready Prepared Media

Technical Information

Lead Acetate Agar

Product Code: PM 1180

Application: Recommended for detection of hydrogen sulphide producing enteric bacteria

Composition**

Ingredients	Gms / Litre
Peptone	15.000
Proteose peptone	5.000
Dextrose (Glucose)	1.000
Lead acetate	0.200
Sodium thiosulphate	0.080
Agar	15.000
Final pH (at 25°C)	6.6±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Salmonella, Shigella, Yersinia species and certain strains of *Escherichia coli* cause severe gastroenteritis and life- threatening systemic illness in human (1, 6). Of these, *Salmonella Typhi* can be differentiated due to their ability to form hydrogen sulphide (7). Lead Acetate Agar is the modification of the original formulation of Spray (8). This medium was successfully used to study hydrogen sulphide production (5,8). Lead Acetate Agar can also be used to differentiate between

Salmonella Paratyphi A and *Salmonella Paratyphi* B (3). The latter produces hydrogen sulphide, observed as browning of the medium, within 18-24 hours, whereas the former fails to produces hydrogen sulphide.

Peptone, proteose peptone and dextrose provide all the essential nutrients for the growth of bacteria. Bacteria capable of using sulphur from sodium thiosulphate in their metabolic activities produce hydrogen sulphide. Lead acetate acts as an indicator of hydrogen sulphide production observed as browning of the medium. Dextrose is the fermentable carbohydrate source. Production of gas from dextrose is indicated by the presence of bubbles in the butt.

Type of specimen

Clinical sample-Isolated samples from faeces

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (2,4).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 guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

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Limitations

1. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium .
2. Each lot of the medium has been tested for the organisms specified on the COA. It is recommended to users tovalidate the medium for any specific microorganism other than mentioned in the COA based on the user's unique requirement.
3. It is recommended to store the plates at 24-30°C to avoid minimum condensation .

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

Either streak, inoculate or surface spread the test inoculum (50-100 CFU) aseptically on the plate.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder
pH
6.40-6.80
Gelling
Firm, comparable with 1.5% Agar gel
Colour and Clarity of prepared medium
Medium amber coloured clear to slightly opalescent gel forms in tubes as slants
Reaction
Reaction of 3.63% w/v aqueous solution at 25°C. pH : 6.6±0.2
pH
6.40-6.80
Cultural Response
Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Oragnism	Inoculum (CFU)	Growth	Gas Production	H_2S Production
Escherichia coli ATCC 25922 (00013*)	50-100	luxuriant	Positive Reaction	Negative Reaction
# *Klebsiella aerogenes* ATCC 13048 (00175*)	50-100	luxuriant	Positive Reaction	Negative Reaction
Salmonella Paratyphi A ATCC 9150	50-100	luxuriant	Negative Reaction	Negative Reaction
Salmonella Paratyphi B ATCC 8759	50-100	luxuriant	Negative Reaction	positive reaction, browning of the medium
Salmonella Typhi ATCC 6539	50-100	luxuriant	Variable Reaction	positive reaction browning of the medium
Salmonella Typhimurium ATCC 14028 (00031*)	50-100	luxuriant	Negative Reaction	positive reaction browning of the medium
Shigella dysenteriae ATCC13313	50-100	luxuriant	Negative Reaction	Negative Reaction
Shigella flexneri ATCC 12022 (00126*)	50-100	luxuriant	Negative Reaction	Negative Reaction

Key : (*) Corresponding WDCM numbers.
(#) Formerly known as Enterobacter aerogenes

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Storage and Shelf Life

Store between 20-30°C. Use before expiry period 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 (2,4).

Further Reading

1. Balows A., Hausler W. J. Jr., Hermann K. L., Isenberg H. D., Shadomy H. J., (Eds.), Manual of Clinical Microbiology, 5th Ed., ASM, Washington, D.C.
2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
3. Jordan E. O. and Victorson R., 1917, J. Infect. Dis., 21:554
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. Morrison L. E. and Tanner F. W., 1922, J. Bacteriol., 7:343.
6. Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Yolken R. H., (Ed.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C.
7. Orlowski, 1897, Dissert, St. Petersburg.
8. Spray R. S., 1936, J. Bacteriol., 32:135

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 developmentwork carried at **CDH** is true and accurate
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