Lead Acetate Agar

M180

Lead Acetate Agar is recommended for the detection of hydrogen sulphide producing enteric bacteria.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	15.000
Proteose peptone	5.000
Dextrose	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

Directions

Suspend 36.28 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Dispense into test tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Allow the tubes to cool in a slanted position to obtain slants with generous butts. Inoculate pure culture by surface streaking the slant and stabbing the butt.

Principle And Interpretation

Salmonella, Shigella, Yersinia species and certain strains of *Escherichia coli* cause severe gastroenteritis and life-threatening systemic illness in human (1, 2). Of these, *Salmonella* Typhi can be differentiated due to their ability to form hydrogen sulphide (3). Lead Acetate Agar is the modification of the original formulation of Spray (4). This medium was successfully used to study hydrogen sulphide production (4, 5). Lead Acetate Agar can also be used to differentiate between *Salmonella* Paratyphi A and *Salmonella* Paratyphi B (6). The latter produces hydrogen sulphide, observed as browning of the medium, within 18-24 hours, whereas the former fails to produces hydrogen sulphide.

Peptic digest of animal tissue, 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.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

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
M180: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Gas Production	H2S production
Cultural Response				
Escherichia coli ATCC 25922	50-100	luxuriant	positive reaction	negative reaction

Enterobacter aerogenes ATCC 13048	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	50-100	luxuriant	negative reaction	positive reaction, browning of the medium
Shigella dysenteriae ATCC 13313	50-100	luxuriant	negative reaction	negative reaction
Shigella flexneri ATCC 12022	50-100	luxuriant	negative reaction	negative reaction

Storage and Shelf Life

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

Reference

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2. 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.
3. Orlowski, 1897, Dissert, St. Petersburg.
4. Spray R. S., 1936, J. Bacteriol., 32:135.
5. Morrison L. E. and Tanner F. W., 1922, J. Bacteriol., 7:343.
6. Jordan E. O. and Victorson R., 1917, J. Infect. Dis., 21:554.

Revision : 2 / 2015