Technical Information

Liver Veal Agar

Product Code: DM 1176

Application: - Liver Veal Agar is used for the cultivation of fastidious anaerobic organisms.

Composition**

Ingredients	Gms / Litre
Liver, infusion from	10.000
Veal, infusion from	10.000
Proteose peptone	20.000
Casein enzymic hydrolysate	1.300
Peptone, special	1.300
Gelatin	20.000
Starch, soluble	10.000
Casein, purified	2.000
Dextrose	5.000
Sodium chloride	5.000
Sodium nitrate	2.000
Agar	15.000
Final pH (at 25°C)	7.3±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Anaerobic bacteria live in an oxygen-free environment. Some anaerobic bacteria actually die if oxygen is present while others fail to grow and multiply (1). One of the methods of cultivation of anaerobes is using the Sprays medium by using the anaerobic culture dish (2). Liver Veal Agar is formulated as per the medium of Spray (3). Liver Veal Agar is recommended by APHA (4) and the FDA Bacteriological Analytical Manual (BAM) (5). Liver Veal Agar on supplementation of 50% egg yolk is used for the cultivation of anaerobic organisms (4-6). The medium is highly nutritious and therefore is an excellent medium for growth of sporulating anaerobic bacteria.

Both the infusions, peptones, casein enzymic hydrolysate and gelatin act as sources of carbon, nitrogen, amino acids and various vitamins. Dextrose acts as the carbon source. Starch inhibits growth of anaerobic bacteria. Spray reported isolation of *Clostridium perfringens* within 6 hours of inoculation and *Clostridium tetani* within 8 hours. When the medium is inoculated with a small inoculum, gas production is not evident. Spray recommended that the medium should be taken directly from the sterilizer or should be boiled for 10 minutes to drive off dissolved oxygen and cooled without agitation. Serial inoculations are made and the medium is poured into plates. After solidification, 5 ml sterile Liver Veal Agar is poured over the medium as a cover layer to prevent the spreading of surface colonies.

Refer standard procedures for isolation and cultivation of anaerobic bacteria (7, 8).

C. botulinum and *C. tetani* are highly hazardous and extreme care should be taken while handling these cultures.

Methodology

Suspend 97 grams of dehydrated powder media in 1000 ml warm distilled water. Mix thoroughly & heat to boiling to dissolve the medium completely. Sterilize by autoclavingat 15 lbs pressure (121°C) for 15 minutes. Shake well before pour into sterile Petri plates.

Quality Control

Appearance
Light yellow to brownish yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity
Amber coloured clear to slightly opalescent gel forms in Petri plates, may have slight precipitate.

Reaction
Reaction of 9.7% w/v aqueous solution at 25°C. pH : 7.3±0.2

pH Range
7.10-7.50

Cultural Response
DM1176: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours (under the atmospheric requirement of organism).

Organism	Growth
Clostridium botulinum ATCC 25763	luxuriant
Clostridium tetani ATCC 10709	luxuriant
Neisseria meningitidis ATCC 13090	luxuriant
Streptococcus pneumoniae ATCC 6303	luxuriant

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label.
Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Alcamo I. E., 2001, Fundamentals of Microbiology, 6th Ed., Jones and Bartlett Publishers
2. Spray R. S., 1930, J. Lab. Clin. Med. 16:203.
3. Spray R. S., 1936, J. Bacteriol., 32:135.
4. 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.
5. U.S. Food and Drug Administration, 1995, Bacteriological Analytical Manual, 8th Ed., AOAC International, Gaithersburg, Md.
6. Atlas R. M., 2004, Handbook of Microbiological Media, CRC Press, Boca Raton, Fla.
7. Isenberg, (Ed.), 1992, Clinical Microbiology Procedures Handbook,Vol. I, ASM, Washington, D.C.
8. Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Yolken R. H., (Eds.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C.

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