Columbia Broth

LQ006

Intended Use

Recommended used as a general purpose medium and also for the cultivation of fastidious organisms from clinical specimens.

Composition**

Ingredients	Gms / Litre
Peptone special	10.000
Biopeptone	10.000
HI powder	3.000
L-Cysteine hydrochloride	0.100
Dextrose (Glucose)	2.500
Sodium chloride	5.000
Magnesium sulphate	0.100
Ferrous sulphate	0.020
Sodium carbonate	0.600
Tris (hydroxymethyl) aminomethane	0.830
Tris (hydroxymethyl) aminomethane hydrochloride	2.860
Final pH (at 25°C)	7.5±0.2

**Formula adjusted, standardized to suit performance parameters

Equivalent to Heart infusion powder

Directions

Label the ready to use blood culture bottle. Remove the Aluminium foil cap. Disinfect the part of the rubber stopper which is now exposed. Draw patient's blood with the sterile or disposable needle and syringe as explained in specimen collection and disposable column. Transfer the blood sample immediately into the culture bottle by puncturing the rubber stopper with the needle and injecting the blood. Venting: Use sterile venting needle (LA038). Keep the bottle in an upright position preferably in a biological safety cabinet, place an alcohol swab over the rubber stopper and insert the venting needle with filter through it. Insertion and withdrawal of the needle should be done in a straight line. discard the needle and mix the contents by gently inverting the bottle 2-3 times. Do Not vent the bottle for anaerobic cultures. Incubate at 35±2°C for 18-24 hours and further for seven days.

Principle And Interpretation

Morello and Ellner in 1969 devised a liquid medium for the recovery of microorganisms from blood cultures (4). This medium was devised from Columbia Blood Agar Base previously formulated by Ellner et al (1). While studying they found that Columbia Broth was superior to a commonly used general-purpose broth for faster growth of *Staphylococcus aureus*, *Escherichia coli*, viridans Streptococci and *Enterococcus* groups.

In the formulation the increased concentration of cystine is provided for improved recovery of both aerobic and anaerobic microorganisms from blood specimens. It is an excellent blood culture medium (2). It differs from the agar base in that the cornstarch is omitted to reduce opalescence (4) and salts have been included. Medium contains peptone special, biopeptone and HI powder to support luxurious growth of the organisms. Dextrose is added as a carbon and energy source. The medium is buffered with tris buffer. The addition of salts was found to be beneficial for the recovery of organisms. L-Cysteine HCL is the reducing agent. Magnesium & iron are added to facilitate organism growth. Growth in tubes is indicated by presence of turbidity compared to an uninoculated control. If growth appears, cultures should be subcultured onto appropriate media.

Type of specimen

Clinical samples : Blood

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (4,5).
After use, contaminated materials must be sterilized by autoclaving before discarding.

Limitations

1. Further biochemical and serological tests must be carried out for complete identification.

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
Sterile clear BHI Broth in glass bottle.

Colour
Light amber coloured clear solution

Quantity of Medium
20ml of medium in glass bottle. (Volume of blood for paediatrics use - 1 to 3 ml)

Reaction
7.20- 7.60

Sterility test
Passes release criteria

Cultural response
Cultural characteristics was observed after incubation at 35-37°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth
Neisseria meningitidis ATCC 13090	50-100	good-luxuriant
Streptococcus pneumoniae ATCC 6303	50-100	good-luxuriant
Streptococcus pyogenes ATCC 19615	50-100	good-luxuriant
Candida albicans ATCC 10231 (00054)*	50-100	good-luxuriant
Staphylococcus aureus subsp. aureus ATCC 25923 (00034*)	50-100	good-luxuriant
Enterococcus faecalis ATCC 29212 (00087*)	50-100	good-luxuriant
Escherichia coli ATCC 25922 (00013*)	50-100	good-luxuriant
Shigella flexneri ATCC 12022 (00126*)	50-100	good-luxuriant

Key : (*) Corresponding WDCM numbers.

Storage and Shelf Life

Store between 15-25°C. 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).

Reference

1. Atlas R. M., 1993, Handbook of Microbiological Media, 147-153, CRC Press, Boca Raton, FL.
2. Conant N. F., 1950, Diagnostic Procedures and Reagents, 3rd Ed., APHA Inc., New York
3. Howard B., Keiser J. F., Weissfeld A. et al, 1994, Clinical and Pathogenic Microbiology, 2nd Ed., Mosby Co.
4. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 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. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.
7. 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.
8. Rosenow, 1919, J. Dental Research, 1:205.
9. Roseburg T. et al, 1944, J. Inf. Dis., 74:131

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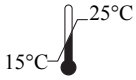
IVD — In vitro diagnostic medical device

CE Marking



Storage temperature

Do not use if package is damaged

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