BRAIN HEART INFUSION BROTH

INTENDED USE

Brain Heart Infusion (BHI) is a general-purpose liquid medium used in the cultivation of fastidious and nonfastidious microorganisms, including aerobic and anaerobic bacteria, from a variety of clinical and nonclinical materials. It serves as a base for supplemented media containing 0.1% agar, Fildes enrichment or 6.5% sodium chloride. A supplemented pre-reduced formulation in tubes is especially recommended for the cultivation of anaerobes.

SUMMARY AND EXPLANATION

Rosenow described brain-heart infusion broth prepared by adding pieces of brain tissue to meat infusion or beef extractdextrose broth.[1] A variation of this medium appeared for many years in the National Formulary.[2] The current formulation is similar to the NF Brain Heart Infusion Broth, but the brain infusion component is composed of solids resulting from the drying of the liquid material and the heart infusion component has been replaced with a peptone of partially digested animal tissue.

BHI broth, 0.5 mL per tube, is used for the cultivation of bacteria employed in the preparation of inocula for microdilution minimal inhibitory concentration (MIC) and identification (ID) test panels. When a large number of cells are inoculated into the small volume of broth, a bacterial culture rapidly reaches its stationary phase of growth.[3] The medium is also used in 5-mL amounts per tube for the preparation of inocula in antimicrobial susceptibility test procedures. This volume and the 8-mL tubes also can be used for general purposes.

PRINCIPLE

BHI Broth is a nutritious, buffered culture medium that contains infusions of brain and heart tissue and peptones to supply protein and other nutrients necessary to support the growth of fastidious and nonfastidious microorganisms.

REAGENTS (FORMULA)

Calf Brains, Infusion	7.7	g
Beef Heart, Infusion	9.8	g
Proteose Peptone	10.0	g
Dextrose	2.0	g
Dipotassium Phosphate	2.5	g
Sodium Chloride	5.0	g

Deionized Water ..... 1000.0 ml

PROCEDURE

With liquid specimens, tubed media should be inoculated with 1-2 drops of the specimen using a sterile pipette. Swab specimens may be inserted into broth after inoculation of plated media.

Liquid media for anaerobic incubation should be reduced prior to inoculation by placing the tubes, with caps loosened, under anaerobic conditions for 18-24 hours prior to use. Alternatively, liquid media may be reduced immediately prior to use by boiling with caps loosened and cooling with tightened caps to room temperature before inoculation.

For use in antimicrobial susceptibility testing, refer to appropriate references.

EXPECTED RESULTS

Growth in the tubes is indicated by the presence of turbidity compared to an uninoculated control. If growth appears, cultures should be examined by Gram stain and subcultured onto appropriate media. If anaerobes are suspected, subcultures should be incubated anaerobically.

QUALITY CONTROL

All lot numbers have been tested and have been found to be acceptable. Customers can test products using the following quality control organisms. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, sample results should not be reported.

Organisms	Incubation	Results
Neisseria meningitidis ATCC 13090	35 ± 2°C for 18-48 hours	Growth
Streptococcus pneumoniae ATCC 6305	35 ± 2°C for 18-48 hours	Growth
Streptococcus pyogenes ATCC 19615	35 ± 2°C for 18-72 hours	Growth

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BIBLIOGRAPHY

1. Rosenow. 1919. J. Dent. Res. 1:205.

2. American Pharmaceutical Association. 1950. The national formulary, 9th ed., APA, Washington, D.C.

3. RPratt-Rippin and Pezzlo. 1992. In Isenberg (ed.), Clinical microbiology procedures handbook, vol. 1. American Society for Microbiology, Washington, D.C.

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