Brain Heart Infusion Agar

Intended Use
Brain Heart Infusion (BHI) Agar is a general-purpose medium used for cultivation of a wide variety of microorganisms including bacteria, yeasts and molds.

Summary
Meat infusions were utilized as the growth-supporting components in a large number of culture media. Although they were cumbersome to prepare, lacked consistency from batch to batch and were undefined as to their nutritive content, they enabled the cultivation of microorganisms in both solid and liquid media. Peptones currently are the major nutritional additives to culture media formulations, but infusions are still utilized in specific media. Brain Heart Infusion Agar with 10% Sheep Blood can be used to isolate systemic fungi that may grow poorly on the nonenriched medium. BHI agar is recommended by APHA for the examination of foods and is included in the Bacteriological Analytical Manual Testing of Cosmetics.

Principle
BHI Agar derives its nutrients from the brain heart infusion and peptones that are sources of organic nitrogen, carbon, sulfur, vitamins and trace substances. Dextrose is a carbohydrate source utilized by fermentative action by microorganisms. Addition of defibrinated sheep blood provides essential growth factors for more fastidious organisms. Disodium phosphate buffers the medium. Addition of antimicrobials like 50 mg per litre of chloramphenicol or 40 mg per litre of streptomycin or mixture of 50 mg of gentamicin and 50 mg chloramphenicol along with 5-10% defibrinated blood is often recommended for inhibition of bacteria and isolation of pathogenic systemic fungi.

Formula*

Ingredients	**g/L**
Beef Heart, Infusion from 250g	9.8
Calf Brain, Infusion from 200g	7.7
Proteose Peptone	10.0
Sodium Chloride	5.0
Dextrose	2.0
Disodium Phosphate	2.5
Agar	15.0
Final pH (at 25°C)	7.4 ± 0.2

*Adjusted to suit performance parameters

Storage and Stability
Store dehydrated medium below 30°C in tightly closed container and the prepared medium at 2ºC-8°C. Avoid freezing and overheating. Use before expiry date on the label. Once opened keep powdered medium closed to avoid hydration.

Type of specimen
Clinical samples - Blood

Specimen Collection and Handling
Ensure that all samples are properly labelled.
Follow appropriate techniques for handling samples as per established guidelines.
Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure.
The samples must be stored and tested within the permissible time duration.
After use, contaminated materials must be sterilized by autoclaving before discarding.

Directions

1. Suspend 52.00 g of the powder in 1000 mL purified / distilled water. Mix well.
2. Boil with frequent agitation to dissolve the powder completely.
3. Sterilize by autoclaving at 121°C (15 psi) for 15 minutes as per validated cycle.
4. Shake well to distribute the precipitate uniformly throughout the medium and pour into petridishes.
5. If required, add antimicrobials to make the medium selective.

Quality Control

Dehydrated Appearance: Cream to yellow coloured, homogenous, free flowing powder.
Prepared Appearance: Light amber coloured, clear to slightly opalescent gel forms in petridishes.
Growth Promotion Test: Growth promotion is carried out in accordance with USP/EP/JP/IP and growth is observed after an incubation at 30°C-35°C for 18-24 hours for bacteria and at 20°C-25°C for 2 days for fungi.
Growth Promoting Properties: The test results observed are within the specified temperature and shortest period of time specified in the test, inoculating ≤ 100 cfu of appropriate microorganism.

Organisms (ATCC)	**Growth**
Candida albicans 3147 (10231)	Good
Escherichia coli (8739)	Good
Shigella flexneri serotype 2b (12022)	Good
Staphylococcus aureus subsp. *aureus* (25923)	Good
Streptococcus pneumoniae (6303)	Good
Escherichia coli (25922)	Good
Staphylococcus aureus subsp. *aureus* (6538)	Good

Note: For Good growth - Growth obtained on test media should not differ by a factor greater than 2 from calculated value for a standardized inoculum.

Interpretation of Results

1. After proper incubation, the plates should show isolated colonies in streaked areas and confluent growth in areas of heavy inoculation.
2. In cultures for fungi, examine plates for fungal colonies exhibiting typical colour and morphology.
3. All cultures must be examined weekly for fungal growth and should be held for 4-6 weeks before being reported as negative.

Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

Precautions/Limitations

Organisms like *H. capsulatum*, *C. immitis* and other pathogenic fungi can produce free infective spores and therefore extreme care must be taken to avoid dissemination of infective particles while culturing.

Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

Reference

1. US Food and Drug Adm; 1998, Bacteriological Analytical Manual, 8th Ed; Rev. AOAC, International, Gaithersburg, Md.
2. Downes and Ito (ed.) 2001, Compedium Of Methods for The Microbiological Examination of Foods, 4th edition, APHA Washington DC.
3. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201020230100	Dehydrated Culture Media	100 g
201020230500	Dehydrated Culture Media	500 g
205020560100	Ready Prepared Plate (90 mm)	100 plates