Brain Heart Infusion Broth

Intended Use
Brain Heart Infusion Broth is a highly nutritious liquid medium used for propagation of pathogenic cocci and other fastidious organisms associated with blood culture work and allied pathological investigations.

Summary
Brain Heart Infusion Broth is a modification of the original formulation of Rosenow, where he added pieces of brain tissues to dextrose broth. This medium is especially useful as a growth and suspension medium for Staphylococci which is to be tested for coagulase production and when supplemented with yeast extract, hemin and menadione, it was found to be better in producing heavy growth of five species of *Bacteroides.* BHI agar is included in the Bacteriological Analytical Manual for food and cosmetics testing and is also recommended by APHA for the examination of foods and milk.

Principle
Brain Heart Infusion Medium is useful for cultivating a wide variety of microorganisms and also to prepare the inocula for antimicrobial susceptibility testing. Brain Heart Infusion Broth is also the preferred medium for anaerobic bacteria, yeasts and moulds. Addition of 10% defibrinated sheep blood, makes it useful for isolation and cultivation of Histoplasma capsulatum and other fungi. For selective isolation of fungi, addition of gentamicin and/or chloramphenicol is recommended. Proteose peptone and infusions (calf brain and beef heart) serve as sources of carbon, nitrogen, essential growth factors, amino acids and vitamins. Dextrose serves as energy source and disodium phosphate helps in maintaining the buffering action of the medium whereas sodium chloride maintains the osmotic equilibrium of the medium.

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
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, Food samples

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 37.00 g of the powder in 1000 mL purified / distilled water.
2. Mix thoroughly.
3. Boil with frequent agitation to dissolve the powder completely.
4. Dispense in tubes or bottles as desired.

5. Sterilize by autoclaving at 121°C (15 psi) for 15 minutes as per validated cycle.

Quality Control

Dehydrated Appearance: Cream to yellow coloured, homogeneous, free flowing powder.
Prepared Appearance: Light yellow to amber coloured, clear to slightly opalescent solution without any precipitate.
Growth Promotion Test: Growth promotion is carried out in accordance with the harmonized method of USP/EP/JP/IP and growth is observed after an incubation at 30°C-35°C for 24-48 hours.
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 at 30°C-35°C for 24 hours.

Organisms (ATCC)	**Growth**
Enterococcus faecalis (29212)	Good
Neisseria gonorrhea (49226)	Good
Streptococcus pneumoniae (6305)	Good
Streptococcus pyogenes Strain Bruno (19615)	Good
Candida albicans 3147 (10231)	Good
Staphylococcus aureus subsp. *aureus* (6538)	Good
Staphylococcus aureus subsp. *aureus* (25923)	Good

Interpretation of Results

1. Growth in tubes is indicated by turbidity
2. Examine cultures by gram stain method and subculture onto appropriate media like Soyabean Casein Digest Agar with 5% sheep blood or EMB Agar
3. Incubate the subcultures anaerobically if anaerobes are suspected
4. Enterococci grow in the medium containing 6.5% sodium chloride within 24-48 hours while non-enterococcal group D Streptococci fail to grow.

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

1. Tubes of Brain Heart Infusion Broth not used on the same day, should be placed in boiling water bath for a few minutes to remove absorbed oxygen, and cooled rapidly without shaking, just before use.
2. Brain Heart Infusion Broth with addition of 1.5% agar should not be used for detection of haemolytic activity of Streptococci, since the presence of dextrose in it may cause atypical haemolytic reactions when used in blood containing media.

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. Rosenow,1919, J. Dental Res; 1:205.
2. H. Wehr and J. Frank, 2004, Std. Methods for The Examination of Dairy Products, 17th Edition; APHA, Washington, DC.
3. US Food and Drug Adm; 1998, Bacteriological Analytical Manual, 8th Ed; Rev. AOAC, International, Gaithersburg, Md.
4. Downes and Ito (ed.) 2001, Compedium Of Methods for The Microbiological Examination of Foods, 4th edition, APHA Washington DC.
5. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201020240100	Dehydrated Culture Media	100 g
201020240500	Dehydrated Culture Media	500 g
203020450005	Ready Prepared Tube	50 x 5 mL