

05121 Heart Infusion Broth (HIB)

Heart Infusion Broth is used for general laboratory purpose for the cultivation of fastidious organisms.

Composition:

Ingredients	Grams/Litre
Beef heart (infusion from 500.0 g/l)	10.0
Tryptose	10.0
Sodium chloride	5.0
Final pH 7.4 +/- 0.2 at 25°C	

Store prepared media below 8°C, protected from direct light. Store dehydrated powder, in a dry place, in tightly-sealed containers at 2-25°C.

Appearance: Light yellow colored, homogenous, free flowing powder.

Color and Clarity: Light yellow colored, with the addition of blood, cherry red colored opaque solution.

Directions:

Suspend 25 g in 1000 ml of purified water. Boil to dissolve the medium completely. Sterilize by autoclaving at 121°C for 15 minutes. If desired 5% sterile defibrinated blood may be added. Mix well and pour sterile petri plates or tubes.

Principle and Interpretation:

Heart Infusion Broth is a non-selective general purpose media used for fastidious microorganisms. A liquid media with infusion of meat was one of the first media used for the cultivation of bacteria. Since then many modifications of Heart Infusion media have been described [7]. Huntoon [1] used fresh beef heart and meat peptone to prepare a "hormone" broth retaining growth stimulators. The growth factors were described by Lloyed and Cole [2,3]. Highly pathogenic organisms, such as meningococci and pneumococci, could grow on infusion medium without enrichments [1]. The addition of Tryptose is better suited to the nutritional requirements of pathogenic bacteria than meat peptone. Heart Infusion Broth is also recommended for *Vibrio cholerae* and *Vibrio* species [4,5] and can be used as the base in carbohydrate fermentation tests [6].

The addition of carbohydrates, blood or other ingredients result in media used for a variety of purposes used in diverse applications.

Beef heart infusion and Tryptose provide nitrogenous compounds, amino acids and other essential growth nutrients. Sodium chloride is used to maintain the osmotic balance.

Cultural characteristics after 18-48 hours at 35°C.

Organisms (ATCC)	Growth
<i>Escherichia coli</i> (25922)	+++
<i>Neisseria meningitidis</i> (13090)	+++
<i>Streptococcus pneumoniae</i> (6303)	+++
<i>Streptococcus pyogenes</i> (19615)	+++



References:

1. F.M. Huntoon, "Hormone" Medium. A simple medium employable as a substitute for serum medium., J. of Infect. Dis., 23,169-172 (1918)
2. Lloyed, J. Path. and Bact., 21 (Part 1), 113 (1916)
3. Cole and Lloyed, J. Path. and Bact., 21 (Part 2), 267 (1917)
4. S.M. Harmon, D.A. Kautter, D.A. Golden, E.J. Rhodehamel, p. 9.01-9.24. App. 3.24-3.25. FDA, Bacteriological Analytical Manual, 8th ed. AOAC International, Arlington, VA. (1995)
5. C. Vanderzant, D.F. Splittstoesser (ed.), Compendium of Methods for the Microbiological Examination of Food, 3rd ed. American Public Health Association, Washington, D.C., 1132., p. 451-469 (1992)
6. K.L. Ruoff, *Streptococcus*, P.R. Murray, E.J. Baron, M.A. Pfaller, F.C. Tenover, R.H. Tenover (ed.), Manual of Clinical Microbiology, 6th ed., American Society for Microbiology, Washington, D.C., p.305 (1995)
7. R.M. Atlas, Handbook of Microbiological Media, CRC Press, Boca Raton, FL, p. 426-431 (1993)

Precautions and Disclaimer

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