Heart Infusion Agar

M169

Heart Infusion Agar is used for the isolation and cultivation of a wide variety of fastidious organisms.

Composition**

Ingredients	Gms / Litre
Beef heart, infusion from	500.000
Tryptose	10.000
Sodium chloride	5.000
Agar	15.000
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 40 grams in 1000 ml of distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. If desired 5% v/v sterile defibrinated blood may be added. Mix well and dispense as desired.

Principle And Interpretation

Fastidious organisms having exacting nutritional requirement could be cultivated on infusion media, as demonstrated by Huntoon (1). A liquid medium containing an infusion of meat was one of the first media used for the cultivation of bacteria. These infusion media need not be further supplemented by the addition of supplements for cultivation of fastidious bacteria (2). Heart Infusion Agar, containing infusion from beef heart is used for the isolation and cultivation of a wide variety of fastidious organisms (3). Heart infusion Agar can also be used for the cultivation of *Vibrio* species (2,4). Heart Infusion Agar can also be supplemented with glucose, horse serum and antibiotics for the cultivation a wide variety of organisms (3). Heart Infusion Agar is used for mass cultivation of organisms for preparation of vaccines. On supplementation of blood, Heart Infusion Agar can be used to study haemolytic reactions (5). This medium was used for isolation and enumeration of haemolytic *Streptococci* in milk (6).

Tryptose and beef heart infusion provide nutritional requirements for the pathogenic bacteria. Sodium chloride maintains the osmotic equilibrium of the medium.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Basal medium : Light yellow coloured, clear to slightly opalescent gel After addition of 5-7%w/v sterile defibrinated blood : Cherry red coloured, opaque gel forms in Petri plates

Reaction
Reaction of 4.0% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH
7.20-7.60

Cultural Response
M169: Cultural characteristics observed with added 5-7% w/v sterile defibrinated blood, after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth w/o blood	Recovery w/o blood	Growth with blood	Recovery with blood	Haemolysis

Staphylococcus aureus ATCC 25923	50-100	good-luxuriant	>=70%	luxuriant	>=70%	beta
Neisseria meningitidis ATCC 13090	50-100	luxuriant	>=70%	luxuriant	>=70%	none
Streptococcus pneumoniae ATCC 6303	50-100	good	50-70%	luxuriant	>=70%	alpha
Streptococcus pyogenes ATCC 19615	50-100	good	50-70%	luxuriant	>=70%	beta
Escherichia coli ATCC 25922	50-100	luxuriant	>=70%	luxuriant	>=70%	beta

Storage and Shelf Life

Store below 30°C in tightly closed container and prepared medium at 2-8°C. Use before expiry period on the label.

Reference

1.Huntoon F. M., 1918, J. Inf. Dis., 23:169.
2.FDA Bacteriological Analytical Manual, 8th Ed., AOAC International, Gaithersburg, MD.
3.Atlas R. M., 2004, Handbook of Microbiological Media, 3rd Ed., CRC Press.
4.Downes F. P. and Ito K.,(Ed.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., American Public Health Association, Washington, D.C.
5.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.
6.Diagnostic Procedures and Reagents, 1950, 3rd Edition, 13.

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