Technical Information

Brain Heart Infusion Agar

Product Code: DM1211

Application: Brain Heart Infusion Agar is a solid medium recommended for the cultivation of fastidious pathogenic bacteria, yeasts and moulds.

Composition**

Ingredients	Gms / Litre
Calf brain, infusion from	6.50
Beef heart, infusion from	11.00
Proteose peptone	10.000
Dextrose	2.000
Sodium chloride	5.000
Di-potassium phosphate	2.500
Agar	15.000
Final pH(at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Brain Heart Infusion Agar is highly nutritious and can support luxuriant growth of wide variety of microorganisms. It can be further enriched by the addition of blood or rendered selective by adding different antibiotics (1, 2). It is a general purpose medium used for primary isolation of aerobic bacteria from clinical specimens. Addition of 50 mg/l chloramphenicol or 40mg/ l streptomycin or a mixture of 50mg/l gentamicin and 50mg/l chloramphenicol along with 5-10% sterile defibrinated blood is often recommended for inhibition of bacteria and isolation of pathogenic systemic fungi.

A mixture of cycloheximide (0.5 g/l) and chloramphenicol (0.05 g/l) is also used for selective isolation of pathogenic fungi (incubation at 25-30°C for 1-2 weeks) (3). Some fungi may be inhibited on this medium with 10% sheep blood, gentamicin and chloramphenicol (4-6).

Proteose peptone and infusions used in the media serves as sources of carbon, nitrogen, vitamins, amino acids, along with essential growth factors. Dextrose is the energy source. Sodium chloride helps tomaintain the osmotic equilibrium of the medium while disodium phosphate buffers the medium. Defibrinated sheep blood added to the basal medium provides essential growth factors for the more fastidious fungal organisms.

Methodology

Suspend 52 grams dehydrated powder in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well before pouring. If desired, 20 units Penicillin and 40 µg Streptomycin per ml of medium may be added to make the medium selective for fungi.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Color and Clarity of prepared medium

Basal medium: Light amber coloured clear to slightly opalescent gel. After addition of 5% v/v sterile defibrinated blood: Cherry red coloured, opaque gel forms in Petri plates.

Gelling

Firm, comparable with 1.5% Agar gel.

Reaction

Reaction of 5.2% w/v aqueous solution at 25°C. pH : 7.4±0.2

pH Range

7.20-7.60

Cultural Response

DM1211:- Cultural characteristics observed after an incubation at 35 - 37°C for 18 - 24 hours. (If desired add 5% v/v sterile defibrinated blood).

Organism	Inoculum (CFU)	Growth	Recovery	Good w/blood	Recovery w/blood
Candida albicansATCC 26790	50-100	luxuriant	>-70%	luxuriant	>-70%
Escherichia coli ATCC 25922	50-100	luxuriant	>-70%	luxuriant	>-70%
Shigellaflexneri ATCC 12022	50-100	luxuriant	>-70%	luxuriant	>-70%
Staphylococcus aureus ATCC 25923	50-100	luxuriant	>-70%	luxuriant	>-70%
Streptococcus pneumoniae ATCC 6303	50-100	luxuriant	>-70%	luxuriant	>-70%

Storage and Shelf Life

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

Further Reading

1. Roseburg T. et al, 1944, J. Infect. Dis., 74:131.
2. Conant N. F., 1950, Diagnostic Procedures and Reagents, 3rd Ed., APHA Inc.
3. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williamsand Wilkins, Baltimore.
4. Creitz and Puckett, 1954, Am. J. Clin. Pathol., 24:1318.
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. Ajello L., Georg L., Kaplan W. and Kaufman L., 1963, CDC Laboratory Manual for Medical Mycology, PHS PublicationNo. 994, U.S. Govt. Office, Washington, D.C.

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