Technical Information

Anaerobic Basal Agar

Product Code: DM 2635

Application: - Anaerobic Basal Agar is recommended for the growth of anaerobic microorganisms, particularly *Bacteroides* species and other fastidious anaerobes

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	16.000
Yeast extract	7.000
Sodium chloride	5.000
Starch	1.000
Dextrose	1.000
Sodium pyruvate	1.000
Arginine	1.000
Sodium succinate	0.500
Sodium bicarbonate	0.400
L-Cysteine HCl	0.250
Ferric pyrophosphate	0.500
Hemin	0.005
Vitamin K	0.0005
DL Dithiothreitol (DTT)	0.250
Agar	12.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Bacteroides comprise a major portion of the human normal flora, predominating in the intestinal tract. These organisms are, like other anaerobes, generally opportunistic and can cause a variety of infections throughout the body. The most common infections include pleuropulmonary, intra-abdominal and infections of the female urogenital tract. *Bacteroides* make up about one-third of the total anaerobic isolates obtained from various infections. Anaerobic Basal media are very nutritious and hence recommended for fastidious anaerobes like *Bacteroides* species. Anaerobic organisms require reducing conditions and an absence of dissolved oxygen in the medium. Strict anaerobes obtain its energy and intermediates through oxidation utilizing hydrogen acceptors other than oxygen. Anaerobes are unable to grow if the medium contains dissolved oxygen. Pre- reducing the medium by boiling to drive off the oxygen can expel this. Also reducing agents such as thioglycollate or cysteine can be added to the medium (1)

Peptic digest of animal tissue and yeast extract provide nitrogen, carbon and vitamin source. Starch absorbs the toxic metabolites produced (2). Hemin and Vitamin K serves as essential growth factors for *Bacteroides* species (3). Sodium succinate helps to improve the growth of *Bacteroides* species (4). Sodium pyruvate act as the energy source. It also mimics the role of catalase and degrades traces of hydrogen peroxide, which may be produced by the action of molecular oxygen on media components (5). Arginine and L-cysteine helps to revive and enhance the growth of certain anaerobes (6, 7). It along with dithiothreitol also serves as reducing agent. Anaerobic basal agar can be made selective for gram-negative anaerobes by the addition of Non- spore Anaerobic Supplement (MS 2001) and G.N. Spore Anaerobic Supplement (MS 2002). The media can also be made selective for non- sporing anaerobes by the addition of Non- spore Anaerobic Supplement (MS 2001). Anaerobic Basal Agar can be inoculated directly by surface streaking.

Methodology

Suspend 45.9 grams in 1000 ml distilled water. Mix thoroughly and heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 50-55°C and aseptically add 5-10% sterile defibrinated horse blood. Mix well and pour into sterile Petri plates.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.2% Agar gel

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

Reaction
Reaction of 4.6% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH
6.80-7.20

Cultural Response

Organism	**Growth**
Cultural Response	
Peptostreptococcus anaerobius ATCC 27337	luxuriant
Prevotella melaninogenicus ATCC 15930	luxuriant
Clostridium perfringens ATCC 13124	luxuriant

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.
Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Collee J. G., Fraser A. G. , Marmimon B. P., Simmons A., (Eds.), 1996, Mackie and McCartney , Practical Medical Microbiology, 14th Ed.,Churchill Livingstone.
2. Ajello G.W. Geely JC, Hayes PS et al. J. Clin. Micro. 1984:20:55-8.
3. Sperry JF. Wilkins TD. J. Bacteriol. 1976:127:780-784.
4. Gibbons RJ and MacDonnald JB. J. Bact, 1960:80:164-170.
5. Lev M. Keudell KC and Milford AF. J. bact, 1971:108:175-8.
6. Neilson PA. J. Clin. Micr, 1983:17:276-279.
7. Shanson DC and Singh J. J. Clin. Path. 1981:34:221-3.

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