Technical Information

Anaerobic Thioglycollate Medium Base

Product Code: DM 2616

Application: - Anaerobic Thioglycollate Medium is recommended for the cultivation of anaerobes.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	17.000
Papaic digest of soyabean meal	3.000
Meat extract	7.500
Liver hydrolysate	3.000
D-Glucose	6.000
Sodium chloride	2.500
Sodium thioglycollate	0.500
L-Cysteine	0.250
Sodium sulphite	0.100
Agar	0.700
Final pH (at 25°C)	7.3±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Anaerobic Thioglycollate Medium is recommended for the cultivation of anaerobes as described by Caselitz and Freitag (1). Anaerobes, which are very particular in regard to the nutrient quality of the substrate, grow very well in this medium. It has been proved to be of use in determining the resistance of anaerobes to various antibiotics in the serial dilution procedure (2). During the past few years the importance of anaerobic microorganisms as pathogenic agents responsible for infectious diseases and the role they play in the microbial spoilage of food have been better appreciated. Clostridial species are one of the major causes of food poisoning or gastrointestinal illnesses. Anaerobic microorganisms have long been known as constituents of the normal bacterial flora of human and animals. Both their pathogenic significance in medicine and their important role in food hygiene have, however, long been underestimated.

Casein enzymic hydrolysate, papaic digest of soyabean meal, meat extract and liver hydrolysate provides nitrogen, carbon and other nutrients necessary to support bacterial growth in the medium. Glucose is the fermentable carbohydrate. Sodium chloride supply essential ions and maintains osmotic balance of the medium. Sodium thioglycollate and L-cysteine act as reducing agents and maintain a low oxygen tension in the medium. This enables the obligate anaerobes to multiply. The small amount of agar helps in anaerobiosis.

For determining the resistance of anaerobes to various antibiotics, aliquot 4.8 ml of the medium into sterile test tubes containing 0.1ml of serially diluted antibiotic. These tubes are then inoculated with 0.1ml of an adjusted suspension of pure culture of the test bacteria. The lowest antibiotic concentration, which shows no visible growth, is taken as the minimum inhibitory concentration (MIC) of the antibiotic.

Methodology

Suspend 40.55 grams of dehydrated media in 900 ml distilled water. Mix thoroughly & heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Add 100 ml sterile serum. Shake well before dispensing into sterile test tubes under sterile conditions.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Semisolid, comparable with 0.07% Agar gel

Colour and Clarity
Amber to dark amber coloured clear to slightly opalescent gel

Reaction
Reaction of 4.05% w/v aqueous solution at 25°C. pH : 7.3±0.2

pH Range
7.10-7.50

Cultural Response
DM2616: Cultural characteristics observed with added sterile serum after an incubation at 35-37°C for 18- 24 hours.

Organism	Inoculum (CFU)	Growth
Cultural Response		
Escherichia coli ATCC 25922	50-100	good
Bacteroides fragilis ATCC 25285	50-100	good
Bacteroides vulgatus ATCC 8482	50-100	fair
Clostridium perfringens ATCC 13124	50-100	good
Clostridium sporogenes ATCC 11437	50-100	good
Clostridium septicum ATCC 12464	50-100	good

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. Caselitz F. H, u. Freitag V., 1969, Arztl. Lab., 15; 426-430.
2. Caselitz F. H, u. Freitag V., 1970, Arztl. Lab., 16; 165-170.

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