Technical Information

Thiogel Medium

Product Code: DM 1610

Application: - Thiogel Medium is recommended for cultivation of strictly anaerobic, aerobic as well as facultative microorganisms and for the identification of pure cultures on the basis of their ability to liquefy gelatin.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	17.000
Papaic digest of soyabean meal	3.000
Dextrose	6.000
Sodium chloride	2.500
Sodium thioglycollate	0.500
L-Cystine	0.250
Sodium sulphite	0.100
Gelatin	50.000
Agar	0.700
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Proteolytic organisms digest proteins and consequently liquefy gelatin or coagulated serum. Liquefaction of gelatin, being the commonest proteolytic property, is routinely used as an index of proteolytic activity. Gelatin will not by itself support the growth of many pathogens and is therefore added into a nutrient medium [1]. In Thiogel Medium, gelatin is added into Thioglycollate Medium without Indicator [2]. Thioglycollate Medium was modified by Brewer [3, 4] by replacing meat infusion in original formulation by plant soya [5] and casein peptones [6] to enhance growth. Thioglycollate Medium is used for cultivation of strict anaerobes, microaerophiles and aerobic microorganisms and for identifying the pure cultures on the basis of their property to liquefy gelatin.

Casein enzymic hydrolysate, papaic digest of soyabean meal, dextrose and L-cystine in the medium provides nitrogenous and carbonaceous compounds, trace elements, sulphur, and fermentable carbohydrate etc. Thioglycollate is the reducing agent, which binds to the molecular oxygen and thus inhibits the accumulation of peroxides, which are toxic to some microorganisms. Small amount of agar helps to maintains anaerobic condition at the bottom of the tube so that incubation under anaerobic conditions is not necessary. Gelatin serves as the substrate for determining the presence or absence of gelatinase enzyme in microorganisms.

Methodology

Suspend 80.05 grams of powder media in 1000 ml distilled water, preheated to a temperature of 50°C. Mix well and allow to stand for 5 minutes. Shake well & heat to dissolve the medium completely. Dispense in test tubes filling them upto half of the tubes. Sterilize by autoclaving at 118°C for 15 minutes.

Quality Control

Physical Appearance

Cream to yellow homogeneous coarse powder

Gelling

Semisolid, comparable with 5.0% gelatin gel.

Colour and Clarity of prepared medium

Light straw coloured opalescent viscous gel forms in tubes.

Reaction

Reaction of 8.0% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH range

6.80-7.20

Cultural Response/Characteristics

DM 1610: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	Gelatin liquefaction
Bacillus subtilis ATCC 6633	50-100	good-luxuriant	Negative reaction
Bacteroides fragilis ATCC 25285	50-100	good-luxuriant	Negative reaction
Clostridium sporogenes ATCC 11437	50-100	good- luxuriant	Positive reaction
Micrococcus luteus ATCC 10240	50-100	good- luxuriant	Negative reaction
Neisseria meningitidis ATCC 13090	50-100	good- luxuriant	Negative reaction
Streptococcus pyogenes ATCC 19615	50-100	good- luxuriant	Negative reaction

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

1. Collee J. G., Fraser A. G., Marmion B. P., Simmons A., (Eds.), Mackie and McCartney, Practical Medical Microbiology, 1996, 14th Edition, Churchill Livingstone
2. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.
3. Brewer J. H., 1940, Jour. Amer. Medi. Assoc., 115, 598
4.Brewer J. H., 1940, J. Bacteriol., 39, 10
5.Brewer J. H., 1943 J. Bacteriol., 46, 395
6.Vera H. D., 1944, J. Bacteriol., 47, 59

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