Brewer Thioglycollate Medium, Modified

M195

(Thioglycollate Medium, Linden)

Brewer Thioglycollate Medium is used for testing sterility of biological products and for isolation of aerobic and anaerobic organisms.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	17.500
Papaic digest of soyabean meal	2.500
Dextrose	10.000
Sodium chloride	5.000
Dipotassium phosphate	2.000
Sodium thioglycollate	1.000
Methylene blue	0.002
Agar	0.500
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 38.5 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Dispense in tubes or in suitable containers as desired and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Note : If more than the upper one third layer acquires bluish-green colour (absorbs oxygen), the dissolved oxygen can be removed by heating the medium in free flowing steam for 5-10 minutes or in a water bath until the green colour disappears, and the prepared medium should be stored in the dark till use.

Principle And Interpretation

Brewer Thioglycollate Medium Modified is a modification of Linden Thioglycollate Medium (1). National Institute of Health specified the use of Brewers formula and Linden formula (1) for sterility testing, which was later referred to as Modified Brewer Thioglycolate Medium (2).

It contains highly nutritious casein enzymic hydrolysate and papaic digest of soyabean meal which support luxuriant growth of even fastidious bacteria. Sodium thioglycollate helps to create anaerobic condition as well as neutralizes toxicity of mercurial compounds if present in the inoculum of the test material. Sodium chloride maintains the osmotic equilibrium while dipotassium phosphate buffers the medium. Very small amount of agar present maintains anaerobic conditions at the bottom of the broth. Methylene blue indicates oxygen content of the medium by exhibiting bluish-green colour to the medium in presence of oxygen. The uninoculated medium shows bluish green colour at the top indicating presence of oxygen in that part. The medium contains more thioglycollate and is recommended for sterility testing procedures. Organisms that ferment dextrose and lower the pH to critical levels may not survive in this medium after growth has taken place.

Growth is observed as turbidity of the medium compared to an uninoculated control. Strict aerobes tend to grow in a thin layer at the surface of the broth; obligate anaerobes will grow below the upper oxidized layer. Sometimes anaerobes can be overgrown by the more rapidly growing facultative organisms. Some anaerobes may be inhibited by acids or metabolic products produced from more rapidly growing facultative anaerobes. If the medium is to be used as a sterility testing medium incubation should be carried out for minimum 7 days under appropriate atmospheric conditions.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

Yellow coloured clear to slightly opalescent fluid with upper 10% or less medium bluish green on standing.

Reaction
Reaction of 3.85% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH
7.00-7.40

Cultural Response
M195: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours (Clostridium and Bacteroides species incubated anaerobically).

Organism	Inoculum (CFU)	Growth
Cultural Response		
Bacteroides melaninogenicus ATCC 25848	50-100	good-luxuriant
Clostridium sporogenes ATCC 11437	50-100	good-luxuriant
Streptococcus mitis ATCC 9895	50-100	good-luxuriant
Streptococcus pyogenes ATCC 19615	50-100	good-luxuriant
Bacteroides fragilis ATCC 25285	50-100	good-luxuriant
Staphylococcus aureus ATCC 25923	50-100	good-luxuriant

Storage and Shelf Life
Store below 30°C in tightly closed container and prepared medium at 2 to 8°C. Use before expiry date on the label.

Reference
1. Linden. 1941, National Institute of Health
2. MacFaddin J.F, 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol.1 Williams and Wilkins, Baltimore.

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