



Thiostarch Broth

M193

Thiostarch Broth is used for sterility testing of pharmaceutical or biological products.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	15.000
Yeast extract	5.000
L-Cystine	0.500
Dextrose	5.000
Sodium chloride	2.500
Sodium thioglycollate	0.500
Soluble starch	1.000
Resazurin	0.001
Agar	0.750
Final pH (at 25°C)	7.1±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 30.25 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Dispense in test tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 20 minutes.

Principle And Interpretation

Brewer (1) formulated Fluid Thioglycollate Medium for rapid cultivation of aerobes as well as anaerobes including microaerophiles by adding a reducing agent and small amount of agar. The USP (2), BP (3), EP (4) and AOAC (5) have recommended the media for sterility testing of antibiotics, biologicals and foods and for determining the phenol coefficient and sporicidal effect of disinfectants. However, it is intended for the examination of clear liquid or water-soluble materials. Fluid Thioglycollate Medium is also routinely used to check the sterility of stored blood in blood banks (6). Thiostarch Broth is a slight modification of Fluid Thioglycollate Medium. It additionally contains soluble starch which neutralizes the toxic effects.

Casein, enzymic hydrolysate, yeast extract, L-cysteine provide nitrogen source and growth factor for bacterial growth. Sodium thioglycollate and L-cysteine are reducing agents, maintains low redox potential and support anaerobiosis and thus allows *Clostridium* to grow in the medium even under aerobic conditions(7). Resazurin is an oxidation-reduction indicator being pink when oxidized and colourless when reduced. Small amount of agar assists in the maintenance of a anaerobiosis in the lower depths of the medium.

Quality Control

Appearance

Cream to pink coloured homogeneous free flowing powder

Colour and Clarity of prepared medium

Light straw coloured upper 10% or less medium pink on standing, clear to slightly opalescent.

Reaction

Reaction of 3.03% w/v aqueous solution at 25°C. pH : 7.1±0.2

pH

6.90-7.30

Cultural Response

M193: Cultural characteristics observed after an incubation at 35 - 37°C for 18 - 48 hours.

Organism	Inoculum (CFU)	Growth
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Cultural Response

<i>Bacillus subtilis</i> ATCC 6633	50-100	luxuriant
<i>Candida albicans</i> ATCC 10231	50-100	luxuriant
<i>Clostridium sporogenes</i> ATCC 11437	50-100	luxuriant
<i>Micrococcus luteus</i> ATCC 10240	50-100	luxuriant
<i>Streptococcus pyogenes</i> ATCC 19615	50-100	luxuriant

Storage and Shelf Life

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

Reference

1. Brewer, 1940, J. Am. Med. Assoc., 115:598.
2. The United States Pharmacopoeia, 2009, The United States Pharmacopoeial Convention, Rockville, MD.
3. British Pharmacopoeia, 2009, The Stationery office British Pharmacopoeia.
4. European Pharmacopoeia, 2009, European Dept. for the quality of Medicines.
5. Williams H., (Ed.), 2005, Official Methods of Analysis of the Association of Official Analytical Chemists, 19th Ed., AOAC, Washington, D.C.
6. Federal Register, 1992, Fed. Regist., 21:640.2.17.
7. Quastel and Stephenson, 1926, J. Biochem., 20:1125.

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