

Technical Information

Fluid Thioglycollate Medium w/ Beef Extract

Product Code: DM 1380

Application: - Fluid Thioglycollate Medium with Beef Extract is used for sterility testing of biologicals and for cultivation of aerobic and anaerobic organisms.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	15.000
Yeast extract	5.000
Beef extract	5.000
Dextrose	5.500
Sodium chloride	2.500
L-Cystine	0.500
Sodium thioglycollate	0.500
Resazurin sodium	0.001
Agar	0.750
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Brewer ⁽¹⁾ devised Fluid Thioglycollate Medium for rapid cultivation of aerobes as well as anaerobes by adding a reducing agent and small amount of agar. The USP ⁽²⁾ and AOAC ⁽³⁾ have recommended the media for sterility testing of antibiotics, biologicals and foods and for determining the phenol coefficient and sporicidal effect of disinfectants. Fluid Thioglycollate Medium with Beef Extract is recommended for the detection of viable bacteria in live vaccines, as recommended by the Animal and Plant Health Inspection Services, USDA ⁽⁸⁾.

Dextrose, casein enzymic hydrolysate, yeast extract, beef extract, L-cystine provide the growth factors necessary for bacterial multiplication. Sodium thioglycollate act as a reducing agent and neutralizes the toxic effects of mercurial preservatives and peroxides formed in the medium, thereby promoting anaerobiosis, and making the medium suitable to test materials containing heavy metals. ^(5, 6). Any increase in the oxygen content is indicated by a colour change of redox indicator, resazurin to red ^(4, 5, 6). The small amount of agar helps in maintaining low redox potential for stabilizing the medium ⁽⁷⁾. Also the small amount of agar used in the medium favors the growth of aerobes as well as anaerobes in the medium, even if sodium thioglycollate is deleted from the medium ⁽¹⁾.

Methodology

Suspend 34.75 grams of powder media in 1000 ml distilled water. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 25°C and store in a cool dark place preferably below 25°C.

Note: If more than the upper one-third of the medium has acquired a pink colour, the medium may be restored once by heating in a water bath or in free flowing steam until the pink colour disappears.



Dehydrated Culture Media
Bases / Media Supplements

Quality Control

Physical Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity of prepared medium

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

Reaction

Reaction of 3.47% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH range: 7.00-7.40

Cultural Response/ characteristics

DM 1380: Cultural characteristics observed after an incubation at 25 - 30°C for 40 - 72 hours.

Organism	Inoculum (CFU)	Growth
<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	fair-good
<i>Bacteroides vulgatus</i> ATCC 8482	50-100	luxuriant
<i>Neisseria meningitidis</i> ATCC 13090	50-100	luxuriant
<i>Streptococcus pyogenes</i> ATCC 19615	50-100	luxuriant

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° in sealable plastic bags for 2-5 days.

Further Reading

1. Brewer, 1940, J. Am. Med. Assoc., 115:598.
2. U. S. Pharmacopeia, 2002, USP 25/NF 20, Asian Edition, United States Pharmacopeial Convention, Inc., Rockville, MD.
3. Cunniff P. (Ed.), 1995, Official Methods of Analysis of the Association of Official Analytical Chemists, 16th ed., AOAC, Washington, D.C.
4. Marshall, Gunnison and Luxen, 1940, Proc. Soc. Exp. Biol. Med., 43:672.
5. Nungester, Hood and Warren, 1943, Proc. Soc. Exp. Biol. Med., 52:287.
6. Portwood, 1944, J. Bact., 48:255.
7. MacFaddin J.F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.
8. Federal Register, 1992, Fed. Regist., 21:113.26.

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