

Fluid Thioglycollate HiCynth™ Medium (Thioglycollate HiCynth™ Medium, Fluid)

MCD009

Fluid Thioglycollate HiCynth™ medium is used for sterility testing of biologicals and for cultivation of anaerobes, aerobes and microaerophiles.

Composition**

Ingredients	Gms / Litre
HiCynth™ Peptone No.3*	15.000
HiCynth™ Peptone No.5*	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)	7.1±0.2

**Formula adjusted, standardized to suit performance parameters

*Chemically defined peptones

Directions

Suspend 29.75 grams in 1000 ml distilled water. Heat to boiling 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.

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 (10). Fluid Thioglycollate HiCynth™ Medium is prepared by replacing animal and vegetable peptones with chemically defined peptones to avoid BSE/TSE risks associated with animal peptones.

HiCynth™ Peptone No.3, HiCynth™ Peptone No.5 and Dextrose provides carbon and nitrogen compounds, long chain amino acids, vitamins and other essential growth nutrients. L-cystine provide the growth factors necessary for bacterial multiplication. L-cystine and sodium thioglycollate allows *Clostridium* to grow in this medium even under aerobic conditions(11). 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). 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. (9,10). Any increase in the oxygen content is indicated by a colour change of redox indicator, resazurin to red (6,7,8). The small amount of agar helps in maintaining low redox potential for stabilizing the medium (9).

Quality Control

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 2.97% w/v aqueous solution at 25°C. pH : 7.1±0.2

Please refer disclaimer Overleaf.

pH

6.90-7.30

Growth Promotion Test

In accordance with the harmonized method of USP/EP/BP.

Cultural Response

Cultural characteristics observed after an incubation at 30-35°C for not more than 3 days.

Cultural Response

Organism	Inoculum (CFU)	Growth
Growth at 30-35°C for <= 3 days incubated anaerobically		
<i>Clostridium sporogenes</i> ATCC 19404	50 -100	luxuriant
<i>Clostridium sporogenes</i> ATCC 11437	50 -100	luxuriant
<i>Clostridium sporogenes</i> NBRC 14293	50 -100	luxuriant
<i>Clostridium perfringens</i> ATCC 13124	50 -100	luxuriant
<i>Bacteroides fragilis</i> ATCC 23745	50 -100	luxuriant
<i>Bacteroides vulgatus</i> ATCC 8482	50 -100	luxuriant
Growth at 30-35°C for <= 3 days incubated aerobically		
<i>Staphylococcus aureus</i> ATCC25923	50 -100	luxuriant
<i>Staphylococcus aureus</i> ATCC 6538	50 -100	luxuriant
<i>Pseudomonas aeruginosa</i> ATCC 27853	50 -100	luxuriant
<i>Pseudomonas aeruginosa</i> ATCC 9027	50 -100	luxuriant
<i>Micrococcus luteus</i> ATCC 9341	50 -100	luxuriant
<i>Streptococcus pneumoniae</i> ATCC 6305	50 -100	luxuriant
<i>Escherichia coli</i> ATCC 25922	50 -100	luxuriant
<i>Escherichia coli</i> ATCC 8739	50 -100	luxuriant
<i>Escherichia coli</i> NCTC 9002	50 -100	luxuriant
<i>Salmonella Typhimurium</i> ATCC 14028	50 -100	luxuriant
<i>Salmonella Abony</i> NCTC 6017	50 -100	luxuriant
<i>Bacillus subtilis</i> ATCC 6633	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 period on the label.

Reference

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7. Nungester, Hood and Warren, 1943, Proc. Soc. Exp. Biol. Med., 52:287.
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Please refer disclaimer Overleaf.

9. MacFaddin J.F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.
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