Technical Data

MacConkey HiCynth™ Agar w/ CV and NaCl

MCD081

MacConkey HiCynth™ Agar w/ CV and NaCl is recommended for the selective isolation and differentiation of coliform organisms and other enteric pathogens from clinical, dairy, food, water, pharmaceutical industrial samples.

Composition**

Ingredients	Gms / Litre
HiCynth™ Peptone No.3*	17.000
HiCynth™ Peptone No.5*	3.000
Lactose	10.000
Synthetic detergent	1.500
Sodium chloride	5.000
Neutral red	0.030
Crystal violet	0.001
Agar	15.000
Final pH (at 25°C)	7.1±0.2

**Formula adjusted, standardized to suit performance parameters

*Chemically defined peptones

Directions

Suspend 51.53 grams in 1000 ml distilled water. Heat to boiling with gentle swirling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Avoid overheating. Cool to 45-50°C. Mix well and pour into sterile Petri plates. The surface of the medium should be dry when inoculated.

Principle And Interpretation

MacConkey agars are slightly selective and differential plating media mainly used for the detection and isolation of gram-negative organisms from clinical (1), dairy (2), food (3,4), water (5), pharmaceutical (6) and industrial sources (7). It is also recommended for the selection and recovery of the *Enterobacteriaceae* and related enteric gram-negative bacilli. USP recommends this medium for use in the performance of Microbial Limit Tests (6). MacConkey HiCynth™ Agar w/ CV and NaCl is the modification of regular Macconkey agar prepared by replacing animal and vegetable peptones with chemically defined peptones to avoid BSE/TSE risks associated with animal peptones.

MacConkey Agar is the earliest selective and differential medium for cultivation of enteric microorganisms from a variety of clinical specimens (8,9). The original medium contains protein, bile salts, sodium chloride and two dyes. The selective action of this medium is attributed to crystal violet and synthetic detergent, which are inhibitory to most species of gram-positive bacteria. Gram-negative bacteria usually grow well on the medium and are differentiated by their ability to ferment lactose. Lactose-fermenting strains grow as red or pink colonies . The red colour is due to production of acid from lactose, absorption of neutral red and a subsequent colour change of the dye when the pH of medium falls below 6.8. Lactose non-fermenting strains, such as *Shigella* and *Salmonella* are colourless, transparent and typically do not alter appearance of the medium.

HiCynth™ Peptone No.3 and HiCynth™ Peptone No.5 provide the necessary nitrogen compounds, carbon, long chain amino acids, vitamins and also some trace ingredients necessary for the growth of bacteria. Lactose is a fermentable carbohydrate, Sodium chloride maintains the osmotic equilibrium. Synthetic detergent and crystal violet are selective agents that inhibit growth of gram-positive organisms. Neutral red is the pH indicator dye.

Quality Control

Appearance

Light yellow to pink homogeneous free flowing powder

Gelling

Firm comparable with 1.5% Agar gel.

Colour and Clarity of prepared medium

Red with purplish tinge coloured clear to slightly opalescent gel forms in Petri plates.

Reaction
Reaction of 5.15% w/v aqueous solution at 25°C. pH : 7.1±0.2

pH
6.90-7.30

Cultural Response
Cultural response was observed after an incubation at 35-37°C for 18-24 hours. Recovery rate is considered as 100% for bacteria growth on Soybean Casein Digest Agar.

Cultural Response

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
Cultural Response				
Escherichia coli ATCC 8739	50 -100	luxuriant	>=50 %	pink-red
Escherichia coli ATCC 25922	50 -100	luxuriant	>=50 %	pink to red
Escherichia coli NCTC 9002	50 -100	luxuriant	>=50 %	pink to red
Enterobacter aerogenes ATCC 13048	50 -100	luxuriant	>=50 %	pink to red
Enterococcus faecalis ATCC 29212	50 -100	fair to good	30 -40 %	colourless to pale pink
Salmonella Typhimurium ATCC 14028	50 -100	luxuriant	>=50 %	colourless
Staphylococcus aureus ATCC 6538	>=10^3	inhibited	0%	
Staphylococcus aureus ATCC 25923	>=10^3	inhibited	0%	
Salmonella Enteritidis ATCC 13076	50 -100	luxuriant	>=50 %	colourless
Salmonella Paratyphi A ATCC 9150	50 -100	luxuriant	>=50 %	colourless
Salmonella Paratyphi B ATCC 8759	50 -100	luxuriant	>=50 %	colourless
Salmonella Typhi ATCC 6539	50 -100	luxuriant	>=50 %	colourless
Salmonella Abony NCTC 6017	50 -100	luxuriant	>=50 %	colourless
Proteus vulgaris ATCC 13315	50 -100	luxuriant	>=50 %	colourless
Shigella flexneri ATCC 12022	50 -100	fair to good	30 -40 %	colourless
Staphylococcus epidermidis ATCC 12228	>=10^3	inhibited	0%	
Corynebacterium diphtheriae type gravis	>=10^3	inhibited	0%	

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
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