HiCrome MM Agar

M1393

HiCrome MM Agar is recommended for identification and differentiation of *Salmonella* and non-salmonella like *Citrobacter* from water and clinical samples.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	10.000
Beef extract	2.000
D-Cellobiose	3.000
Lactose	10.000
D-Mannitol	1.200
D-Trehalose	1.330
Chromogenic mixture	6.600
Agar	15.000
Final pH (at 25°C)	7.6±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 49.13 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 45-50°C and pour into sterile Petri plates.

Principle And Interpretation

HiCrome MM Agar was formulated by Miller and Mallison (1) for specific isolation and detection of Salmonellae. This medium is superior to XLT4 Agar in supporting growth of *Salmonella* due to the presence of appropriate proportion of four sugars. Most differential and selective media are formulated with one or more sugars and pH indicators respectively. The utilization of sugars by organisms results in pH-changes. This is used as a means of distinguishing *Salmonella* from competing bacteria on the basis of colony colour. *Salmonella* usually are unable to ferment these sugars (2) that supports growth of competing bacteria. Thus other bacteria tend to overgrow Salmonellae, masking their presence. The inclusion of sugars like mannitol, cellobiose and trehalose stimulate the better initial growth of Salmonella cells. However, the low concentrations of these sugars do not interfere with the utilization of protein and H2S production. Presence of lactose suppresses H2S production by non-salmonellae like *Citrobacter freundii* .

The chromogenic mixture, present in this medium helps to differentiate between lactose fermenters and nonfermenters. Lactose fermenters give bluish green coloured colonies, which would have been impossible to differentiate with an indicator based on pH change. Inclusion of tergitol 4 in the medium suppresses the presence of *Proteus* and *Providencia* colonies. Peptic digest of animal tissue and beef extract provide essential nitrogen compounds.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Light amber coloured, slightly opalescent gel forms in Petri plates

Reaction
Reaction of 4.91% w/v aqueous solution at 25°C. pH : 7.6±0.2

pH
7.40-7.80

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18 - 24 hours .

Cultural Response

Organism	Inoculum (CFU)	Growth	Recovery	Colour of Colony
Cultural Response				
Citrobacter freundii ATCC 8090	50-100	good-luxuriant	>=50%	colourless may show bluish green colour on prolonged incubation
Enterococcus faecalis ATCC 29212	>=10^3	inhibited	0%	
Escherichia coli ATCC 25922	50-100	luxuriant	>=50%	light blue
Salmonella Typhimurium ATCC 14028	50-100	luxuriant	>=50%	black centered
Salmonella Enteritidis ATCC 13076	50-100	luxuriant	>=50%	black centered
Pseudomonas aeruginosa ATCC 27853	50-100	good-luxuriant	>=50%	colourless

Storage and Shelf Life

Store dehydrated powder and prepared medium at 2-8°C. Use before expiry period on the label.

Reference

1.Miller R.G. and Mallison E.T., 2000, J. Food Protection, 63(10), 1443-46.
2.Miller R.G., Tate C.R., Mallinson E.T. and Scherrer J.A., 1991, Pault Sa 70:2429-32.

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