



For Life is Precious

# HiCrome™ Chromogenic Coliform Agar (CCA Agar) (M1991I) in accordance with ISO 9308-1:2014

## Use :

Recommended for detection of *Escherichia coli* and coliforms in water samples. The composition and performance criteria of this medium are as per the specifications laid down in ISO 9308-1:2014

## Advantages :

- ▶ Simultaneous detection of *Escherichia coli* and total coliforms.
- ▶ Excellent recovery from water with low count
- ▶ Easy interpretation due to colour differentiation
- ▶ Available in dehydrated and ready prepared form

## Principle :

- ▶ Mixture of three chromogens, easily detects  $\beta$ -galactosidase and  $\beta$ -glucuronidase enzymes.
- ▶ IPTG is added to enhance colour detection.
- ▶ L-Tryptophan - improved indole reaction (helps in easy detection).
- ▶ Tergitol-7 for selectivity - Gram positive bacteria inhibited

## Interpretation :

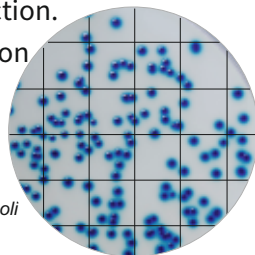
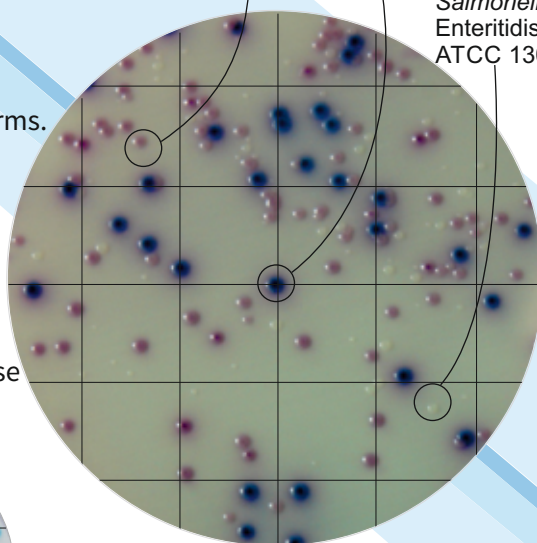
- ▶ ***E.coli* - dark blue to violet**
- ▶ **Other coliforms - pink to red**
- ▶ **Other gram negative bacteria - colourless**
- ▶ **Organisms with weak glucuronidase activity but no beta galactosidase activity produce light blue to turquoise colonies.**

\* Formerly known as *Enterobacter aerogenes*

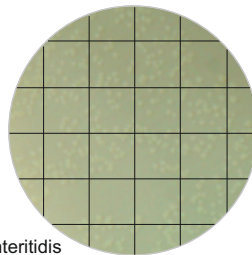
*Klebsiella aerogenes\**  
ATCC 13048

*Escherichia coli*  
ATCC 25922

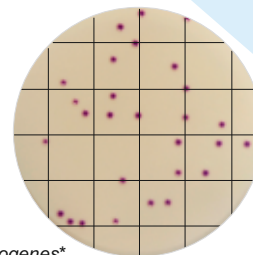
*Salmonella*  
Enteritidis  
ATCC 13076



*Escherichia coli*  
ATCC 25922



*Salmonella* Enteritidis  
ATCC 13076



*Klebsiella aerogenes\**  
ATCC 13048

**M1991I CCA Agar**

## Technique :

Filter 100ml of water sample through 0.45µm membrane filter\*



Place on the surface of the HiCrome™ Chromogenic Coliform agar (CCA Agar) (M1991I), avoid air bubbles.



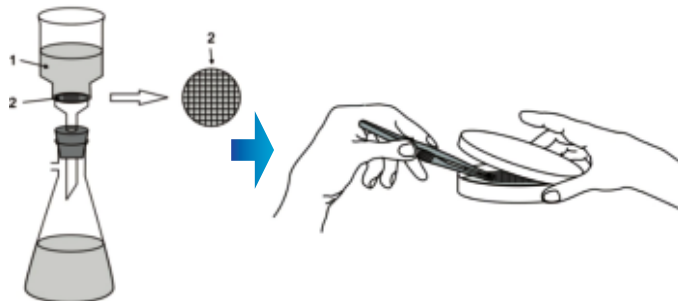
Incubate at  $36 \pm 2^\circ\text{C}$  for 18-24 hours.

Subculture for identification on Tryptone Soy Agar (M290)



Incubate at  $36 \pm 2^\circ\text{C}$  for 18-24 hours

Further identification by Biochemical tests ( )



## Results :

- ▶ All  $\beta$ -galactosidase positive and  $\beta$ -glucuronidase negative organisms produce pink to red coloured colonies indicative of **Coliforms other than *E.coli***.
- ▶ All  $\beta$ -galactosidase positive and  $\beta$ -glucuronidase positive organisms produce dark blue - violet coloured colonies indicative of ***E.coli***.
- ▶ **Total coliforms on membrane as cfu/100ml = Coliforms + *E.coli***

## Composition of M1991I\*\*

Ingredients	Gms / Litre
Tryptone #	1.000
Yeast extract	2.000
Sodium chloride	5.000
Sodium dihydrogen phosphate, $2\text{H}_2\text{O}$	2.200
Disodium hydrogen phosphate	2.700
Sodium pyruvate	1.000
Sorbitol	1.000
Tryptophan	1.000
Tergitol-7	0.150
6-chloro-3-indoxyl $\beta$ -D-galactopyranoside	0.200
5-bromo-4-chloro-3-indoxyl- $\beta$ -D-glucuronic acid	
cyclohexamine ammonium salt, monohydrate	
IPTG (Isopropyl- $\beta$ -D-thiogalactopyranoside)	0.100
Agar	15.000
Final pH (at $25^\circ\text{C}$ )	$6.8 \pm 0.2$

\*\*Formula adjusted, standardized to suit performance parameters

# Enzymatic digest of casein

## • Confirmation (Biochemical tests) :

Test	Medium/ Reagent no.	Positive Reaction	Negative Reaction	<i>Escherichia coli</i> ATCC 25922 (WDCM 00013)	<i>Klebsiella</i> <i>aerogenes</i> * ATCC 13048 (WDCM 00175)	<i>Enterococcus</i> <i>faecalis</i> ATCC 19433 (WDCM 00009)	<i>Pseudomonas</i> <i>aeruginosa</i> ATCC 10145 (WDCM 00024)
Indole Formation	M1339 (Tryptophan Medium) & R008 (Kovac's Indole Reagent)	Red ring	Yellow brown ring	+	-	-	-
Oxidase	DD018 (Oxidase Discs)	Purple colour	No purple colour	-	-	-	+

## Packaging availability :

\* Formerly known as *Enterobacter aerogenes*

Code	Description	Medium	Package
M1991I	Dehydrated Culture Media	HiCrome™ Chromogenic Coliform Agar (CCA Agar)	100G, 500G
M1991AI	Dehydrated Culture Media	HiCrome™ Chromogenic Coliform Agar w/ 1% Agar (CCA w/ 1% Agar)	100G, 500G
MCD1991I	Dehydrated Culture Media	HiCrome™ Chromogenic Coliform HiCynth™ Agar (CCA Agar)	100G, 500G
MP1991I	Ready prepared plates	HiCrome™ Chromogenic Coliform Agar Plate (CCA Plate)	20PT, 50PT
SP1991I	Ready prepared plates	HiCrome™ Chromogenic Coliform Agar Plate	100PT
MF034	Ready prepared plates	Chromogenic Coliform Medium (without membrane filter)	20PT, 50PT
MF034F	Ready prepared plates	Chromogenic Coliform Medium (w/sterile membrane filter)	20PT, 50PT

**HIMEDIA**®

**HiMedia Laboratories Pvt. Limited**

A-516, Swastik Disha Business Park, LBS Marg, Mumbai - 400 086, India.

Phone : 00-91-22-6147 1919, 2500 3747 Fax : 6147 1920 • Email : [info@himedialabs.com](mailto:info@himedialabs.com), [www.himedialabs.com](http://www.himedialabs.com)



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