Michrom™ Chromogenic Coliform Agar ISO

Intended Use
A medium used for detection of *Escherichia coli* and coliforms in water as well as clinical samples in compliance with ISO specification ISO 9308-1:2014.

Summary and Principle
Michrom™ Chromogenic Coliform Agar is a selective medium recommended for the simultaneous detection of *Escherichia coli* and total coliform in water samples.
The medium contains three types of chromogenic substrates. The enzyme ß-D-galactosidase produced by coliforms cleaves 6-chloro-3-indoxyl-β-D-galactopyranoside to form pink to red coloured colonies. The IPTG enhances the colour reaction. Addition of L-Tryptophan improves the indole reaction thereby increasing the detection reliability. The presence of the third chromogen enzyme ß-D-glucuronidase produced by *E. coli*, cleaves 5-bromo-4chloro-3-indoxyl-β-D-glucuronic acid Colonies of *E. coli* give dark blue to violet coloured colonies due to cleavage of both the chromogens.
Tryptone, sodium pyruvate and sorbitol provide nitrogenous substances, fermentable carbohydrate and other essential growth nutrients for the organisms. The media formulation helps even sub-lethally injured coliforms to recover and grow rapidly. Phosphates buffer the medium. Tergitol-7 inhibits Gram-positive as well as some Gram-negative bacteria other than coliforms.

Formula*

Ingredients	**g/L**
Tryptone #	1.0
Yeast Extract	2.0
Sodium chloride	5.0
Sodium dihydrogen phosphate, Dihydrate	2.2
Disodium hydrogen phosphate	2.7
Sodium pyruvate	1.0
Sorbitol	1.0
Tryptophan	1.0
Tergitol-7	0.15
6-chloro-3-indoxyl-β-D-galactopyranoside	0.2
5-bromo-4-chloro-3-indoxyl- β-D-glucuronic acid Cyclohexamine ammonium salt, monohydrate	0.1
IPTG (Isopropyl- β-D-Thiogalactopyranoside)	0.1
Agar	15.0
Final pH (at 25°C)	6.8 ± 0.2

*Adjusted to suit performance parameters
Enzymatic Digest of Casein

Storage and Stability
Store dehydrated powder in tightly closed container and the prepared medium at 2°C-8°C. Avoid freezing and overheating. Use before expiry date on the label. Once opened keep powdered medium closed to avoid hydration.

Type of specimen
Clinical samples – Urine
Water samples – Water and wastewater

Specimen Collection and Handling
Ensure that all samples are properly labelled.
Follow appropriate techniques for handling samples as per established guidelines.
Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure.
The samples must be stored and tested within the permissible time duration.
After use, contaminated materials must be sterilized by autoclaving before discarding.

Directions

1. Suspend 30.92 g (the equivalent weight of the dehydrated medium per litre) of the powder in 1000 mL purified / distilled water.
2. Heat to boiling to dissolve the powder completely.
3. DO NOT AUTOCLAVE. DO NOT OVERHEAT.
4. Cool to 45°C-50°C. Mix well and pour into sterile petridishes.

Quality Control

Dehydrated Appearance: Beige coloured, homogenous, free following powder.
Prepared Appearance: Transparent, clear gel forms in petridishes.
Growth Promotion Test: Cultural characteristics observed after an incubation of 24 hours at 34°C-38°C.

Organism (ATCC)	Growth	Colour of the colony
Citrobacter freundii (8090)	Good	Pink
Klebsiella aerogenes (13048)	Good	Pink
Escherichia coli (25922)	Good	Violet
Escherichia coli (8739)	Good	Violet
Enterococcus faecalis (29212)	Inhibited	-
Pseudomonas aeruginosa (10145)	Good	Colourless

Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

Use and Disposal of Dehydrated Media

Inoculation of culture media with bacteria, deliberately and accidentally, leads to a very great number of organisms being produced. High concentrations of any organisms are potentially hazardous and must be disposed off safely. Therefore, after use, prepared plates, samples, sample containers or other contaminated material must be sterilized or incinerated before discarding. All autoclaved biohazards should be disposed off in accordance with state and local environmental regulations.
Only qualified personnel who have been trained in microbiological procedures should handle all infected specimens and inoculated culture media. User should ensure that any machinery or apparatus used and by chance contaminated must be safely disinfected or sterilized. The environment in which microbiological cultures are handled must also be considered.

Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

References

1. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), 2015, Standard Methods for the Examination of Water and Wastewater, 23rd ed., APHA, Washington, D.C.
2. International Organization for Standardization. Water quality: Enumeration of *E. coli* and coliform bacteria. Part I-Membrane filtration methods for bacteria with low bacterial background flora. ISO 9308-1:2014.
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
4. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1
5. Kilian M. and Bülow P., 1976, Acta. Pathol. Microbiol. Scand Sect. B, 84:245.
5. Manafi M. and Kneifel W., 1989, Zentralbl. Hyg., 189:225.
6. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201131640100	Dehydrated Culture Media	100 g
201131640500	Dehydrated Culture Media	500 g