

For identification and differentiation of UTI causing organisms

HiCrome™ UTI Agar

A differential medium recommended for presumptive identification and confirmation of microorganisms mainly causing urinary tract infections. Can also be used for testing water, food, environmental and other clinical samples.

M1353 /
M1353R

Composition **

	M1353	M1353R
Ingredients	Grams/Litre	Grams/Litre
Peptone, special	15.00	-
Peptone	-	15.00
Chromogenic mixture	2.45	26.80
Agar	15.00	15.00

Final pH (at 25°C) 6.8 ± 0.2

** Formula adjusted, standardized to suit performance parameters

Directions

Suspend 32.45 grams of M1353 or 56.8 grams of M1353R 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. Mix well and pour into sterile Petri plates.

Principle and Interpretation

Urinary tract infections are bacterial infections affecting parts of urinary tract. The common symptoms of urinary tract infection are urgency and frequency of micturition, with associated discomfort or pain. The common condition is cystitis, due to infection of the bladder with a uropathogenic bacterium, which most frequently is *Escherichia coli*, but sometimes *Staphylococcus saprophyticus* or especially in hospital-acquired infections, *Klebsiella* species, *Proteus mirabilis*, other coliforms, *Pseudomonas aeruginosa* or *Enterococcus faecalis* (1). HiCrome™ UTI Agar is formulated on basis of work carried out by Pezzlo (5) Wilkie et al (7), Friedman et al (2), Murray et al (4), Soriano and Ponte (6) and Merlino et al (3). These media are recommended for the detection of urinary tract pathogens where HiCrome™ UTI Agar has broader application as a general nutrient agar for isolation of various microorganisms. It facilitates and expedites the identification of some gram-negative bacteria and some gram-positive bacteria on the basis of different contrasted colony colours produced by reactions of genus or species specific enzymes with two chromogenic substrates. The chromogenic substrates are specifically cleaved by enzymes produced by *Enterococcus* species, *E. coli* and coliforms. Presence of amino acids like phenylalanine and tryptophan from peptones helps for detection of tryptophan deaminase activity, indicating the presence of *Proteus* species, *Morganella* species and *Providencia* species.

One of the chromogenic substrate is cleaved by β -glucosidase possessed by enterococci resulting in formation of blue colonies. *E. coli* produce pink-purple colonies due to the enzyme β -D-galactosidase that cleaves the other chromogenic substrate. Further confirmation of *E. coli* can be done by performing the indole test. Coliforms produce purple coloured colonies due to cleavage of both the chromogenic substrate. Colonies of *Proteus*, *Morganella* and *Providencia* species appear brown because of tryptophan deaminase activity. Peptone or

peptone special provides nitrogenous, carbonaceous compounds long chain amino acids and other essential growth nutrients.

This medium can be made selective by supplementation with antibiotics for detecting microorganisms associated with hospital borne infections.

Type of specimen

Clinical, Food & Water samples

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (8, 9).

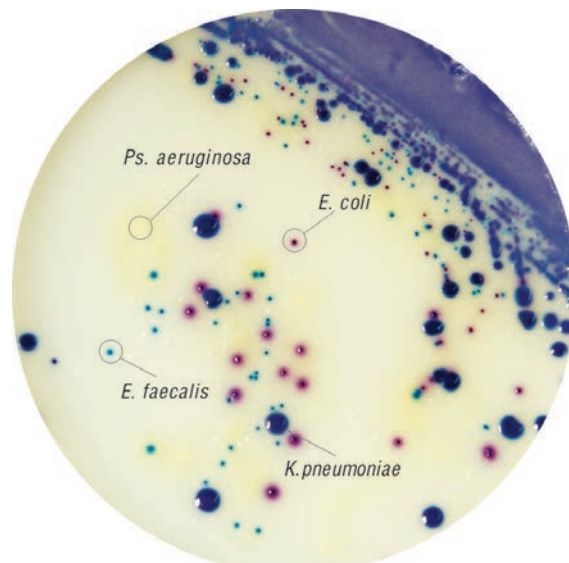
For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (10).

For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(11).

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic use only. Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets



M1353R HiCrome™ UTI Agar

HiCromeVeg™ Freedom from BSE / TSE worries
Single Streak Rapid Differentiation Series

HiCrome™ UTI Agar (M1353) is also available as HiCrome™ UTI HiVeg™ Agar (MV1353) & HiCrome™ UTI HiCynth™ Agar (MCD1353) wherein all the animal origin nutrients have been replaced by vegetable based nutrients & Chemically defined peptones respectively.

For identification and differentiation of UTI causing organisms

HiCrome™ UTI Agar

A differential medium recommended for presumptive identification and confirmation of microorganisms mainly causing urinary tract infections. Can also be used for testing water, food, environmental and other clinical samples.

M1353 /
M1353R

Limitations

1. Some species may show poor growth due to nutritional variations.
2. Slight colour variation may be observed depending upon strains.
3. Further confirmation of *E. coli* can be done by performing the indole test.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the recommended temperature.

Quality Control

- Appearance of Powder** : Cream to yellow (M1353) or white to cream (M1353R) coloured, homogeneous, free flowing powder.
- Gelling** : Firm, comparable with 1.5% Agar gel.
- Colour and Clarity** : Light amber coloured, clear to slightly opalescent of prepared medium gel forms in Petri plates of M1353 or white coloured opaque gel forms with precipitate in Petri plates of M1353R.
- Reaction** : Reaction of 3.24% w/v of M1353 or 5.68% w/v of M1353R aqueous solution at 25°C.
pH : 6.8 ± 0.2.
- Cultural Response** : Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organisms (ATCC)	Inoculum	Growth	Recovery	Colour of colony
<i>Escherichia coli</i> (25922) (00013*)	50-100	luxuriant	≥70%	pink-purple
<i>Proteus mirabilis</i> (12453)	50-100	luxuriant	≥70%	light brown
<i>Klebsiella pneumoniae</i> (13883) (00097*)	50-100	luxuriant	≥70%	blue to purple, mucoid
<i>Pseudomonas aeruginosa</i> (27853) (00025*)	50-100	luxuriant	≥70%	colourless, greenish pigment may be observed
<i>Staphylococcus aureus subsp aureus</i> (25923) (00034*)	50-100	luxuriant	≥70%	golden yellow
<i>Enterococcus faecalis</i> (29212) (00087*)	50-100	luxuriant	≥70%	blue, small

Key : * = corresponding WDCM Numbers

Storage and Shelf-life

Store between 2-8°C in a tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Use before expiry date on the label.

Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (8, 9).

References

1. Collee J. G., Fraser A. G., Marmion B. P., Simmons A., (Eds.), Mackie and McCartney, Practical Medical Microbiology, 1996, 14th Edition, Churchill Livingstone
2. Friedman M. P. et al, 1991, J. Clin. Microbiol., 29:2385-2389.
3. Merlino et al, 1995, Abstr. Austr. Microbiol. 16(4):17-3.
4. Murray P., Traynor P. Hopson D., 1992, J. Clin. Microbiol., 30:1600-1601.
5. Pezzlo M., 1998, Clin. Microbiol. Rev., 1:268-280
6. Soriano F., Ponte C., 1992, J. Clin. Microbiol., 30:3033-3034.
7. Wilkie M. E., Almond M. K., Marsh F. P., 1992, British Medical Journal 305:1137-1141.
8. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
9. 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.
10. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
11. 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.

Ready Prepared Media			
Code	Product Name	Usage	Packing
Category : 90 mm Ready prepared Plates			
MP1353	HiCrome™ UTI Agar Plate	for presumptive identification of microorganisms mainly causing urinary tract infections	20 plts 50 plts
Category : Ready Prepared Solid Media in Glass Bottles			
SM1353	HiCrome™ UTI Agar	for presumptive identification & confirmation of microorganisms mainly causing urinary tract infections & other clinical samples.	5X100 ml
Category : HiTouch™ Flexi Plate™			
FL031	HiTouch™ HexaCrome Flexiplate™	for differentiation of six pathogenic organisms - <i>E.coli</i> , <i>Klebsiella</i> , <i>Enterococcus</i> , <i>Proteus</i> , <i>S. aureus</i> & <i>Pseudomonas</i>	50 plts