HiCrome UTI Agar

M1353R

HiCrome UTI Agar is a differential medium recommended for presumptive identification of microorganisms mainly causing urinary tract infections.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	15.000
Chromogenic mixture	26.800
Agar	15.000
Final pH (at 25°C)	6.8±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 56.8 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 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 (2) Wilkie et al (3), Friedman et al (4), Murray et al (5), Soriano and Ponte (6) and Merlino et al (7). HiCrome UTI Agar (M1353R) is similar to M1353 with a slight difference in chromogenic mixture to improve the colour characteristic of media. 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 ß-glucosidase possessed by Enterococci resulting in formation of blue colonies. *E.coli* produce pink colonies due to the enzyme ß-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. Peptic digest of animal tissue or peptone special provides nitrogenous, carbonaceous compounds and other essential growth nutrients. This medium can be made selective by supplementation with antibiotics for detecting microorganisms associated with hospital borne infections.

Quality Control

Appearance
White to cream homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
White coloured, opaque gel with precipitate forms in Petri plates

Reaction

Reaction of 5.68% w/v aqueous solution at 25°C. pH : 6.8±0.2

pH
6.60-7.00

Cultural Response
M1353R: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of Colony
Enterococcus faecalis ATCC 29212	50-100	luxuriant	>=70%	blue, small
Escherichia coli ATCC 25922	50-100	luxuriant	>=70%	pink-purple
Klebsiella pneumoniae ATCC 13883	50-100	luxuriant	>=70%	blue to purple, mucoid
Pseudomonas aeruginosa ATCC 27853	50-100	luxuriant	>=70%	colourless (greenish pigment may be observed)
Proteus mirabilis ATCC 12453	50-100	luxuriant	>=70%	light brown
Staphylococcus aureus ATCC 25923	50-100	luxuriant	>=70%	golden yellow

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

Reference
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.Pezzlo M., 1998, Clin. Microbiol. Rev., 1:268-280.
3.Wilkie M. E., Almond M. K., Marsh F. P., 1992, British Medical Journal 305:1137-1141.
4.Friedman M. P. et al, 1991, J. Clin. Microbiol., 29:2385-2389.
5.Murray P., Traynor P. Hopson D., 1992, J. Clin. Microbiol., 30:1600-1601.
6.Soriano F., Ponte C., 1992, J. Clin. Microbiol., 30:3033-3034.
7.Merlino et al, 1995, Abstr. Austr. Microbiol. 16(4):17-3.

Revision : 1 / 2011