# HiCrome UTI Agar

**M1353**

HiCrome UTI Agar is 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.

## Composition**

| Ingredients | Gms / Litre |
|---|---|
| Peptone, special | 15.000 |
| Chromogenic mixture | 2.450 |
| Agar | 15.000 |
| Final pH ( at 25°C) | 6.8±0.2 |

**Formula adjusted, standardized to suit performance parameters

## Directions

Suspend 32.45 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. 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). 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**

Cream to yellow homogeneous free flowing powder

**Gelling**

Firm, comparable with 1.5% Agar gel

**Colour and Clarity of prepared medium**

Light amber coloured, clear to slightly opalescent gel forms in Petri plates

**Reaction**

Reaction of 3.24% w/v aqueous solution at 25°C. pH : 6.8±0.2

**pH**
6.60-7.00

**Cultural Response**
M1353: 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.

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