Michrom™ UTI Agar

Intended Use
Michrom™ UTI Agar is a differential medium used for presumptive identification of microorganisms mainly causing urinary tract infections.

Summary
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 an 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*.
Michrom™ UTI Agar is formulated on basis of work carried out by Pezzlo, Wilkie *et al.,* Friedman *et al.,* Murray *et al.,* Soriano and Ponte and Merlino *et al.,* These media are recommended for the detection of urinary tract pathogens where Michrom™ 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 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.

Principle
One of the chromogenic substrates is cleaved by ßglucosidase possessed by Enterococci resulting in formation of blue colonies. *E. coli* produce dark 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. 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.

Formula*
Ingredients	**g/L**
Peptone, Special	15.0
Chromogenic Mixture	2.45
Agar	15.0
Final pH (at 25°C)	6.8 ± 0.2

*Adjusted to suit performance parameters.

Storage and Stability
Store below 8°C in tightly closed container, preferably in dessicators and use freshly prepared medium. 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, Faeces; Food samples; Water Samples

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 32.45 g of the powder in 1000 mL purified / distilled water.
2. Boil with frequent agitation to dissolve the powder completely.
3. Sterilize by autoclaving at 121°C (15 psi) for 15 minutes as per validated cycle.
4. Cool to 50°C and pour into sterile petridishes.

Quality Control

Dehydrated Appearance: Yellow coloured, homogenous free flowing powder.
Prepared Appearance: Light amber coloured clear to slightly opalescent gel forms in petridishes.
Cultural Response: Cultural characteristics observed after an incubation of 18-24 hours at 35°C-37°C.

Organism (ATCC)	Growth	Colour of Colony
Escherichia coli (25922)	Good	Dark pink
Enterococcus faecalis (29212)	Good	Greenish blue, small
Klebsiella pneumoniae subsp. *pneumoniae* (700603)	Good	Metallic blue, mucoid
Proteus mirabilis (25933)	Good	Orangish brown with halo (swarming restricted)
Pseudomonas aeruginosa Strain Boston 41501 (27853)	Good	Transparent with halo may have green fluorescence
Staphylococcus aureus subsp. *aureus* (25923)	Good	Cream

Note: This product is tested with the ATCC culture strains at the time of release and colour of colony may vary from clinical isolates to ATCC culture strains.

Performance and Evaluation

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

1. Directions
2. Storage
3. Expiry

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.

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.
8. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.

Product Presentation:

Cat No.	Product description	Pack Size
201130490100	Dehydrated Culture Media	100 g
201130490500	Dehydrated Culture Media	500 g
205130940020	Ready Prepared Plate (90 mm)	20 Plates