Chromogenic UTI Agar, Veg RDM-UTI-03

Principle

Chromogenic UTI agar is used for presumptive identification of microorganisms causing urinary tract infections. The organisms mainly responsible for urinary tract infections are *Escherichia coli*, *Staphylococcus saprophyticus*, *Klebsiella species*, *Pseudomonas aeruginosa*, *Enterococcus faecalis*, *Proteus mirabilis*, and other coliforms. Media is composed or veg peptone, chromogenic mixture and agar. Veg peptone provides nitrogenous and amino acids. The chromogenic mixture contains chromogens and nutrients, the nutrients provide nitrogenous and carbonaceous compounds, vitamins and essential nutrients including tryptophan. While the chromogenic substance used in this media are X-Glucoside, Red-β-D-galactopyranoside and isopropylthio-β-galactoside. X-Glucoside is a substrate for β-Glucosidase that, upon enzymatic action, gives an insoluble indigo-blue chromophore. Red-β-D-galactopyranoside is used for detection of beta-galactosidase. IPTG (isopropylthio-β-galactoside) is an inducer of β-galactosidase activity in bacteria and is suitable for use with X-gal or Red-gal to detect lac gene activity in *E. coli* or genetically modified microorganisms. The medium also contains tryptophan which acts as an indicator of tryptophan deaminase activity.

The Escherichia coli, produce ß-galactosidase enzyme activity, cleave red-β-D-galactopyranoside and forms pink color colonies. The enterococci cleave X-glucoside, by producing ß-glucosidase enzyme, and result in formation of blue colonies. However, some members of the coliform group, cleaves both the chromogen to form purple colonies. While Proteus, Morganella and Providencia spp. are differentiated on basis of tryptophan deaminase activity and generally forms brown color colonies. Some Enterobacter cloacae lack ß-glucosidase, resulting in pink colonies, similar to *Escherichia coli*, and further differentiated on basis of indole production by using Kovac's reagent.

Use: Recommended for presumptive identification of microorganisms causing urinary tract infections.

Contents*

Ingredients	Gram/Liter
Veg Peptone	15.000
Tryptophan	2.000
Chromogenic mixture	15.500
Agar	15.000
pH at 25˚C	6.8 ±0.2

* Formula adjusted for optimum performance and parameters

Directions: Dissolve 47.50 grams in 1000 ml distilled water. Boil 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.

Specimens types analyzed

Clinical samples: urine, faeces, Water samples and Food samples.

Precautions to be taken

All the handling, experiments, storage, and discarding should be performed with the help of skilled and knowledgeable technicians and as per the established guidelines. The material should be disposed only after proper sterilization by autoclaving. Please go through the MSDS of the media to avoid any accidents or in emergency.

Performance and Evaluation

The expected performance of the medium is liable to use as per the direction on the label when stored at optimum conditions and within expiry date.

Quality Control

Appearance	Light beige colored, free-flowing, homogeneous
Reaction of 4.75 % solution	6.8 ±0.2 at 25 ˚C
pH	6.60- 7.00
Gelling	Firm comparable with 1.5% agar gel
Color and clarity of ready medium	Light beige, clear opalescent gel
Growth Promotion properties	Best at ≤ 100 CFU at 32-37 ºC for 18-72 h
Indicative properties	Optimum at ≤ 100 CFU at 32-37 ºC for 18-48 h
Negative control	Performed using sterile distilled water

Different Microbial Response: Cultural characteristics observed after incubation at 33-37°C for 18-24 hours. Inoculum 50-100 CFU.

Organism	ATCC	Growth	Recovery	Colony color
Escherichia coli	25922	Luxuriant	≥ 60%	Pinkish purple
Pseudomonas aeruginosa	27853	Luxuriant	≥ 60%	Colorless or greenish pigment
Salmonella typhimurium	14028	Luxuriant	≥ 60%	Colorless
Staphylococcus aureus	25923	Luxuriant	≥ 60%	Normal pigmentation
Klebsiella aerogenes	13048	Luxuriant	≥ 60%	Purple
Proteus mirabilis	12453	Luxuriant	≥ 60%	Cream color with brown halo
Enterococcus faecalis	14506	Luxuriant	≥ 60%	Blue

Storage and Shelf Life: The product is highly hygroscopic; keep the container tightly closed at all times and store it properly as per the conditions mentioned on the label. The declared expiry is valid only when stored as per the conditions mentioned on the label.
Note: Sterilize media immediately after reconstitution.

Disposal: To avoid the contamination or propagation of any hazardous microbes the used, unusable or modified preparation of this product must be disposed after autoclaving after completion of task.

Reference

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. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
3. 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 Wastewater, 23rd Ed., APHA, Washington, D.C.
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.

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