Vogel Johnson HiCynth™ Agar Base w/o Tellurite (V.J. HiCynth™Agar)

MCD023

Vogel-Johnson HiCynth™ Agar Base (V.J.HiCynth™ Agar) with addition of potassium tellurite is recommended for selective isolation of coagulase positive, mannitol fermenting *Staphylococcus aureus* from heavily contaminated foods and clinical specimens.

Composition**

Ingredients	Gms / Litre
HiCynth™ Peptone No 2*	15.000
Mannitol	10.000
Dipotassium phosphate	5.000
Lithium chloride	5.000
Glycine	10.000
Phenol red	0.025
Agar	16.000
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

*Chemically defined peptone

Directions

Suspend 61.02 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 and add 20 ml of sterile 1% Potassium Tellurite solution (FD052). Mix gently and pour into sterile Petri plates.

Caution : Lithium chloride is harmful. Avoid bodily contact and inhalation of vapours. On contact with skin, wash with plenty of water immediately.

Principle And Interpretation

Staphylococcus aureus, a gram-positive, spherical bacterium, is a common colonizer of the human skin and mucosa. It causes skin and wound infections, urinary tract infections, pneumonia and bacteremia. It is also commonly implicated in food poisoning. It is also found as a common contaminant in pharmaceutical and cosmetics products (4).

Vogel-Johnson HiCynth™ Agar is chemically defined medium free from animal and vegetable peptones, a modified form of Vogel-Johnson Agar which is prepared according to the formula devised by Vogel and Johnson (1) and is recommended for the microbial limit test in USP (2). Originally it was developed by Zebovitz (3), as a Tellurite Glycine Agar, a selective medium for the detection of coagulase-positive *staphylococci*. Vogel-Johnson modified the medium in 1960 by the addition of phenol red as a pH indicator and by increasing the quantity of mannitol (1). Selection and differentiation of coagulase-positive staphylococci on V.J. HiCynth™ Agar is based on mannitol fermentation and tellurite reduction (5). V.J. Agar is specified in the standard methods for examination of cosmetics (4, 6), pharmaceutical articles and nutritional supplements (2). In addition, the formulation complies with recommendations by the USP for microbial limit testing (2).

HiCynth™ Peptone No.2 provide nitrogenous and carbonaceous compounds, long chain amino acids, vitamin B complex and other growth nutrients. Dipotassium phosphate provides buffering to the medium. During the first 24 hours of incubation, contaminating organisms are almost inhibited by tellurite, lithium chloride and high glycine content. The effect of inhibitors on *S.aureus* is reduced because of the presence of mannitol and glycine.

Coagulase-positive staphylococci reduce potassium tellurite to metallic free tellurium and thus produce black colonies surrounded by yellow zones. This yellow colour is due to phenol red indicator that turns yellow in acidic condition due to the fermentation of mannitol. If mannitol is not fermented, yellow zones are not formed. Also the colour of the medium around the colonies may even be a deeper red than normal due to utilization of the peptones in the medium. Prolonged incubation may result in the growth of black coagulase-negative colonies.

Quality Control

Appearance
Light yellow to pink homogeneous free flowing powder

Gelling
Firm, comparable with 1.6% Agar gel.

Colour and Clarity of prepared medium
Red coloured clear to slightly opalescent gel forms in Petri plates.

Reaction
Reaction of 6.1% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH
7.00-7.40

Cultural Response
Cultural characteristics observed with added 1% Potassium Tellurite solution (FD052), after an incubation at 35-37°C for 24-48 hours.

Cultural Response

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony	Mannitol fermentation
Cultural Response					
Escherichia coli ATCC 25922	>=10^3	inhibited	0%		
Proteus mirabilis ATCC 25933	50-100	poor	10-20%	black	negative
Staphylococcus aureus ATCC 25923	50-100	luxuriant	>=50%	black with yellow halo	positive
Staphylococcus epidermidis ATCC 12228	50-100	Fair-good	30-40%	translucent to blackish	negative
Escherichia coli NCTC 9002	>=10^3	inhibited	0%		
Escherichia coli ATCC 8739	>=10^3	inhibited	0%		
Staphylococcus aureus ATCC 6538	50-100	luxuriant	>=50%	black with yellow halo	positive
Staphylococcus aureus NCIMB 9518	50-100	luxuriant	>=50%	black with yellow halo	positive

Storage and Shelf Life

Store below 30°C in a tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference

1. Vogel R. A. and Johnson M. J., 1960, Public Health Lab. 18:131.
2. United States Pharmacopeia, 2008. United States Pharmacopeial Convention, Inc., Rockville, Md.
3. Zebovitz E., Evans J. B. and Niven C. F., 1955, J. Bacteriol., 70:686.
4. FDA Bacteriological Analytical Manual, 2005, 18th Ed., AOAC, Washington, D.C.
5. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams & Wilkins, Baltimore, Md.
6. Curry A. S., Graf J. G. and McEwen G. M., (Eds.), 1993, CTFA Microbiology Guidelines, The Cosmetic, Toiletry and Fragrance Association, Washington, D.C.

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