



## Vogel- Johnson Agar Base w/ 1.5% Agar

M023F

Vogel-Johnson Agar Base w/ 1.5% Agar with addition of potassium tellurite is recommended for selective isolation of coagulase positive, mannitol fermenting *Staphylococcus aureus* from heavily contaminated foods in accordance with FDA BAM, 1998.

### Composition\*\*

Ingredients	Gms / Litre
Tryptone	10.000
Yeast extract	5.000
Mannitol	10.000
Dipotassium phosphate	5.000
Lithium chloride	5.000
Glycine	10.000
Phenol red	0.025
Agar	15.000
Final pH ( at 25°C)	7.2±0.2

\*\*Formula adjusted, standardized to suit performance parameters

### Directions

Suspend 62.03 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.

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

### Principle And Interpretation

Vogel-Johnson Agar Base w/ 1.5% Agar is prepared according to the formula devised by Vogel and Johnson (1) and is recommended for the selective isolation of coagulase positive, mannitol fermenting *Staphylococcus aureus* from heavily contaminated foods in accordance with FDA BAM, 1998 (2). *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 and as a common contaminant in cosmetics and pharmaceutical products (2). Originally it was developed by Zebovitz (3), as 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. Agar is based on mannitol fermentation and tellurite reduction (4). Vogel-Johnson Agar Base w/ 1.5% Agar can also be used in the enumeration and identification of microbes from cosmetics wherein *Staphylococcus* contamination is expected.

Tryptone and yeast extract provide nitrogenous compounds, 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 1.5% Agar gel.

### Colour and Clarity of prepared medium

Red coloured clear to slightly opalescent gel forms in Petri plates.

### Reaction

Reaction of 6.03% 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
<b>Cultural Response</b>					
<i>Escherichia coli</i> ATCC 25922	≥10 <sup>3</sup>	inhibited	0%		
<i>Proteus mirabilis</i> ATCC 25933	50-100	poor	10-20%	black	
<i>Staphylococcus aureus</i> ATCC 25923	50-100	luxuriant	≥50%	black with yellow halo	positive
<i>Staphylococcus epidermidis</i> ATCC 12228	50-100	Fair-good	30-40%	translucent to blackish	
<i>Escherichia coli</i> NCTC 9002	≥10 <sup>3</sup>	inhibited	0%		
<i>Escherichia coli</i> ATCC 8739	≥10 <sup>3</sup>	inhibited	0%		
<i>Staphylococcus aureus</i> ATCC 6538	50-100	luxuriant	≥50%	black with yellow halo	positive
<i>Staphylococcus aureus</i> NCIMB 9518	50-100	luxuriant	≥50%	black with yellow halo	positive

### Storage and Shelf Life

Store below 30°C in 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. FDA, U.S. 1998. Bacteriological Analytical Manual. 8 ed. Gaithersburg, Md. : AOAC International.
3. Zebrovitz E., Evans J. B. and Niven C. F., 1955, J. Bacteriol., 70:686.
4. MacFaddin, J. F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. vol. 1. Baltimore: Williams and Wilkins.

Revision : 01/ 2015

### Disclaimer :

User must ensure suitability of the product(s) in their application prior to use. Products conform solely to the information contained in this and other related HiMedia™ publications. The information contained in this publication is based on our research and development work and is to the best of our knowledge true and accurate. HiMedia™ Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are not intended for human or animal or therapeutic use but for laboratory, diagnostic, research or further manufacturing use only, unless otherwise specified. Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.