



Vogel Johnson Agar Plate (V.J. Agar Plate)

MP023

Intended Use:

Recommended for selective isolation of coagulase positive, mannitol fermenting *Staphylococcus aureus* from heavily contaminated food and clinical specimens.

Composition**

Ingredients	g / L
Tryptone	10.000
Yeast extract	5.000
Mannitol	10.000
Dipotassium hydrogen phosphate	5.000
Lithium chloride	5.000
Glycine	10.000
Phenol red	0.025
Agar	16.000
1% Potassium tellurite solution (FD052)	2.00 vials
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Either streak, inoculate or surface spread the test inoculum (50-100 CFU) aseptically on the plate.

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 (1).

Vogel-Johnson Agar is prepared according to the formula devised by Vogel and Johnson (2) and is recommended for the microbial limit test in USP (3). Originally it was developed by Zebovitz (4), 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 (2). Selection and differentiation of coagulase-positive staphylococci on V.J. Agar is based on mannitol fermentation and tellurite reduction (5). V.J. Agar is specified in the standard methods for examination of cosmetics (1,6), pharmaceutical articles and nutritional supplements (3). In addition, the formulation complies with recommendations by the USP for microbial limit testing (3).

Tryptone and yeast extract provide nitrogenous and carbonaceous compounds, vitamin B complex and other growth nutrients. Dipotassium hydrogen phosphate provides buffering to the medium. During the first 24 hours, 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 mannitol fermentation. 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 growth of black coagulase - negative colonies.

Type of specimen

Clinical samples - pus samples, urine, wound samples, skin samples, nasal swabs; Food and dairy samples.

Specimen Collection and Handling:

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (7,8).

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (9).

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic Use. For professional use only. Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium.
2. Each lot of the medium has been tested for the organisms specified on the COA. It is recommended to users to validate the medium for any specific microorganism other than mentioned in the COA based on the user's unique requirement.
3. Further biochemical testing is required on colonies of pure culture for complete identification.
4. It is recommended to store the plates at 24-30°C to avoid minimum condensation.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Sterile Vogel-Johnson Agar Plate (V.J. Agar) in 90 mm disposable plates with smooth surface and absence of black particles/cracks/bubbles.

Colour

Red coloured medium

Quantity of medium

25ml of medium in disposable plate

Reaction

7.00- 7.4 0

Sterility Check

Passes release criteria

Cultural Response

Cultural characteristics observed after incubation at 35-37°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony	Mannitol fermentation
<i>Escherichia coli</i> ATCC 25922 (00013*)	$\geq 10^3$	inhibited	0%	-	-
<i>Proteus mirabilis</i> ATCC 25933	50-100	poor	10-20%	black	negative
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 25923 (00034*)	50-100	luxuriant	$\geq 50\%$	black with yellow halo	positive
<i>Staphylococcus epidermidis</i> ATCC 12228 (00036*)	50-100	Fair-good	30-40%	translucent to blackish	negative
<i>Escherichia coli</i> ATCC 8739 (00012*)	$\geq 10^3$	inhibited	0%	-	-
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 6538 (00032*)	50-100	luxuriant	$\geq 50\%$	black with yellow halo	positive

Key : (*) Corresponding WDCM numbers.

Storage and Shelf Life

On receipt store between 20-30°C. Use before expiry date on the label. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (7,8).

Reference

1. FDA Bacteriological Analytical Manual, 2016, AOAC, Washington, D.C.
2. Vogel R. A. and Johnson M. J., 1960, Public Health Lab. 18:131.
3. United States Pharmacopeia, 2019. United States Pharmacopeial Convention, Inc., Rockville, Md.
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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.
7. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
8. 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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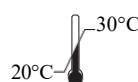
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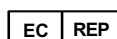
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