Ready Prepared Media

Technical Information

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

Product Code: PM 1023

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

Composition**

Ingredients	Gms / Litre
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 (MS2052)	2.00 vials
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & 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

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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 atrecommended temperature.

Methodology

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

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.

pH

7.00-7.40

Quantity of medium

25 ml of medium in disposable plates .

Colour of medium

Red coloured medium

Sterility Test

Passes release criteria

Cultural Response

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

Oragnism	Inoculum (CFU)	Growth	Recovery	Colour of Colony	Mannitol Fermentation
Escherichia coli ATCC 25922 (00013*)	>=10^3	inhibited	0%	-----	----------
Proteus mirabilis ATCC 25933	50-100	poor	10-20%	Black	Negative
Staphylococcus aureus subsp. aureus ATCC 25923(00034*)	50-100	luxuriant	>=50%	Black with yellow halo	Positive
Staphylococcus epidermidis ATCC 12228 (00036*)	50-100	fair-good	30-40%	Translucent to Blackish	Negative
Escherichia coli ATCC 8739 (00012*)	>=10^3	inhibited	0%	-----	----------
Staphylococcus aureus subsp. aureus ATCC 6538(00032*	50-100	luxuriant	>=50%	Black with yellow halo	Positive

Key : *Corresponding WDCM numbers.

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Storage and Shelf Life

On receipt store between 20-30°C. Use before expiry date on the label. Product performance is best if used with instated 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 sample must be decontaminated and disposed of in accordance with current laboratory techniques (2,3).

Further Reading

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.
4. Zebovitz E., Evans J. B. and Niven C. F., 1955, J. Bacteriol., 70:686.
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.
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.
9. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.

Disclaimer

- User must ensure suitability of the product(s) in their application prior to use.
- The product conform solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at **CDH** is true and accurate
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