# Vogel-Johnson Agar

Cat. 1079

For the selective isolation of Staphylococcus aureus from clinical samples and foods.

## Practical information

| Aplications | Categories |
|---|---|
| Selective isolation | Staphylococcus aureus |

Industry: Clinical / Food

## Principles and uses

Vogel-Johnson Agar is a selective and differential medium used for the early detection of Staphylococcus aureus by identifying the coagulase-positive and mannitol-fermenting strains. The medium is excellent for the detection of staphylococci carriers as well as studies of sanitary concern.

S. aureus reduce the potassium tellurite to the metal tellurium and result in the growth of black colonies. The fermentation of mannitol is indicated by the yellow zones around the black colonies and changes the red color of the medium to yellow. Tryptone provides nitrogen, vitamins, minerals and amino acids essential for growth. Yeast extract is a source of vitamins, particularly of the B-group. Mannitol is the fermentable carbohydrate providing carbon and energy potassium tellurite, lithium chloride and the high glycine concentration inhibit most microorganisms other than staphylococci. Phenol red is the pH indicator. Dipotassium phosphate is a buffer. Bacteriological agar is the solidifying agent.

Vogel-Johnson Agar plates can be streaked heavily with a swab and incubated at 35±2 °C for 24-48 hours. Look for black colonies surrounded by a yellow zone. During the first 24 hours the majority of microorganisms, except for coagulase-positive staphylococci are totally or markedly inhibited. At 48 hours many coagulase-negative staphylococci, mannitol-positive and mannitol-negative, begin to appear. Staphylococcus epidermidis, almost always inhibited early, forms small grayish-black colonies without yellow zones. Coagulase-positive staphylococci form black colonies on the red medium. If they ferment mannitol, the colonies are surrounded by a yellow zone. Mannitol-negative organisms do not change the red color of the medium.

## Formula in g/L

| | | | |
|---|---|---|---|
| Bacteriological agar | 15 | Dipotassium phosphate | 5 |
| D-mannitol | 10 | Glycine | 10 |
| Phenol red | 0,025 | Tryptone | 10 |
| Yeast extract | 5 | Lithium chloride | 5 |

## Preparation

Suspend 60 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Sterilize in autoclave at 121 ºC for 15 minutes. Cool to 45-50 ºC and aseptically add 6 ml of 3,5% Potassium Tellurite (Cat. 5208). Homogenize gently and dispense into Petri dishes. To prepare a less selective medium, only add 3 ml of 3,5% Potassium Tellurite.

## Instructions for use

Inoculate and incubate at a temperature of 35±2 ºC for 24-48 hours.

## Quality control

| Solubility | Appareance | Color of the dehydrated medium | Color of the prepared medium | Final pH (25ºC) |
|---|---|---|---|---|
| w/o rests | Fine powder | Pink | Red, slightly | 7,2±0,2 |

## Microbiological test

Incubation conditions: (35±2 ºC / 24-48 h).

| Microrganisms | Specification | Characteristic reaction |
|---|---|---|
| Staphylococcus epidermidis ATCC 12228 | Moderate growth | Black/translucid colonies |
| Escherichia coli ATCC 25922 | Total inhibition | |
| Staphylococcus aureus ATCC 25923 | Good growth | Black colonies with yellow halos |
| Proteus mirabilis ATCC 25933 | Poor/inhibited growth | Black colonies |

## Storage

Temp. Min.:2 ºC
Temp. Max.:25 ºC

## Bibliography

United States Pharmacopoeia XXI (1985) Microbial limit tests. Rockville Md. Vogel R.A. Jonhson, M. 3. (1961) Pub. Hlth. Lab, 18, 131.
Zebovitz E. Evans, J.B. add Niven C.P. (1955) J. Bact. 70. 687.