

Vogel-Johnson Agar

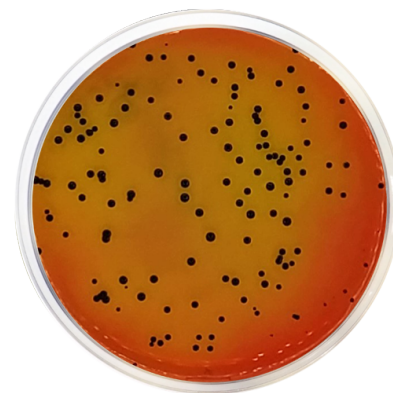
Cat. 1079

For the selective isolation of *Staphylococcus aureus* from food samples.

Practical information

Applications	Categories
Selective isolation	<i>Staphylococcus aureus</i>

Industry: 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.

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

Typical formula g/L * Adjusted and/or supplemented as required to meet performance criteria.

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 °C for 15 minutes. Cool to 45-50 °C 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 °C for 24-48 hours.

Quality control

Solubility	Appearance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25°C)
w/o rests	Fine powder	Pink	Red, slightly	7,2±0,2

Microbiological test

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

Microorganisms	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 °C
Temp. Max.:25 °C

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.