VOGEL AND JOHNSON AGAR (7207)

Intended Use
Vogel and Johnson Agar is used for the isolation of staphylococci.

Product Summary and Explanation
Coagulase-positive staphylococci, primarily *Staphylococcus aureus*, are among the microorganisms that cause spoilage or chemical changes in cosmetic products.[1] To isolate coagulase-positive, mannitol fermenting staphylococci, Vogel and Johnson[2] modified Tellurite-Glycine Agar by Zebovitz, Evans, and Niven.[3] The modification included increasing mannitol and adding a pH indicator. Vogel and Johnson Agar selects and differentiates coagulase-positive staphylococci that ferment mannitol and reduce tellurite.[4]

Vogel and Johnson (VJ) Agar is specified in standard methods testing for cosmetics,[1,5] pharmaceutical articles,[6] and nutritional supplements.[7]

Principles of the Procedure
Enzymatic Digest of Casein provides nitrogen, amino acids, and minerals in Vogel and Johnson Agar. Yeast Extract is a vitamin source to stimulate bacterial growth. Mannitol is the fermentable carbohydrate. Dipotassium Phosphate is the buffering agent. Lithium Chloride, Glycine, and 1% Potassium Tellurite Solution inhibit the growth of most microorganisms except staphylococci. Phenol Red is the pH indicator. Agar is the solidifying agent.

Formula / Liter

Enzymatic Digest of Casein	10 g
Yeast Extract	5 g
Mannitol	10 g
Dipotassium Phosphate	5 g
Lithium Chloride	5 g
Glycine	10 g
Phenol Red	0.025 g
Agar	15 g

Final pH: 7.2 ± 0.2 at 25°C
Formula may be adjusted and/or supplemented as required to meet performance specifications.

Supplement
1% Potassium Tellurite Solution

Precautions
1. For Laboratory Use.
2. TOXIC. Harmful if swallowed, inhaled, or absorbed through skin.

Directions
1. Suspend 60 g of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.
4. After cooling to 45 - 50°C add 20 mL of a sterile 1% Potassium Tellurite Solution.
5. Mix thoroughly before dispensing.

Quality Control Specifications
Dehydrated Appearance: Powder is homogeneous, free flowing, and light red-beige.

Prepared Appearance: Prepared medium is trace to slightly hazy and red-orange.

Expected Cultural Response: Cultural response on Vogel and Johnson Agar at 35°C after 18 - 48 hours incubation.

Microorganism	Response	Reactions
Enterococcus faecalis ATCC® 29212	part. to full inhibited	black colonies
Escherichia coli ATCC® 25923	inhibited	---
Staphylococcus aureus ATCC® 25923	growth	black colonies with yellow zones
Staphylococcus epidermidis ATCC® 12228	partially inhibited	colorless to black colonies

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure
Refer to appropriate references for the isolation and identification of staphylococci.

Results
Coagulase-positive strains of *S. aureus* reduce tellurite and form black colonies on the medium. These strains typically ferment mannitol and exhibit yellow halos around black colonies. Most organisms other than coagulase - positive staphylococci are inhibited during the first 24 hours of incubation. After 24 hours, other organisms, especially fecal streptococci and coagulase - negative *S. epidermidis* may grow.

Storage
Store sealed bottle containing the dehydrated medium at 2 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

Expiration
Refer to expiration date stamped on container. The dehydrated medium should be discarded if not free flowing, or if appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitation of the Procedure
Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.

Packaging
Vogel and Johnson Agar	**Code No.**	**7207A**	**500 g**
		7207B	**2 kg**
		7207C	**10 kg**

References

1. **Hitchins, A. D., T. T. Tran, and J. E. McCarron.** 1995. Microbiological methods for cosmetics, p. 23.01-23.11. *In* Bacteriological analytical manual, 8th ed. AOAC International, Gaithersburg, MD.
2. **Vogel, T. A., and M. Johnson.** 1960. A modification of the Tellurite-Glycine Medium for use in the identification of *Staphylococcus aureus.* Public Health Lab. **18:**131.
3. **Zebovitz, E., J. B. Evans, and C. F. Niven, Jr.** 1955. Tellurite-Glycine Agar; a selective plating medium for the quantitative detection of coagulase-positive staphylococci. J. Bacteriol. **70:**686.
4. **MacFaddin, J. F.** 1985. Media for isolation-cultivation-identification-maintenance of medical bacteria, vol.1, p. 846-849. Williams & Wilkins, Baltimore, MD.
5. **Curry, A. S., J. G. Graf, and G. N. McEwen, Jr. (eds.).** 1993. CTFA microbiology guidelines. The Cosmetic, Toiletry, and Fragrance Association, Washington, D.C.
6. **United States Pharmacopeial Convention.** 1995. The United States pharmacopeia, 23rd ed. The United States Pharmacopeial Convention, Rockville, MD.

Technical Information

Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (410)780-5120 or fax us at (410)780-5470.