

Mannitol Salt Agar (MSA) Plate**(M1300)**

Recommended for selection and subculture of *Staphylococcus aureus*.

Composition

Ingredients	g/ L
Peptone -----	5.000
Tryptone -----	5.000
Beef extract -----	1.000
Sodium chloride -----	75.000
D-Mannitol -----	10.000
Phenol red -----	0.025
Agar -----	15.000

Description

Mannitol Salt Agar (MSA) (Chapman Medium) is a selective medium prepared according to the recommendations of Chapman for the isolation of presumptive pathogenic staphylococci. Most of the other bacteria are inhibited by the high concentration of Sodium chloride.

The pancreatic digest of casein, peptic digest of animal tissue and beef extract provide nitrogen, vitamins, minerals and amino acids essential for growth.

Mannitol is the carbohydrate energy source and phenol red is the pH indicator. Sodium chloride supplies essential electrolytes for transport and osmotic balance. Bacteriological agar is the solidifying agent. The degradation of mannitol by bacteria produces acidic products that change the color of the medium from pink to yellow.

Mannitol is the fermentable carbohydrate fermentation of which leads to acid production, detected by phenol red indicator. *S.aureus* ferment mannitol and produce yellow coloured colonies surrounded by yellow zones. Presumptive coagulase-positive yellow colonies of *S.aureus* should be confirmed by performing the coagulase test.

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines. After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic use only. For professional use only. Follow good microbiological lab practices while handling specimens and culture.

Limitations

1. This medium is a selective medium, some strains of *Staphylococcus aureus* may exhibit a delayed fermentation of mannitol.
2. Certain other bacteria are also mannitol fermenting other than *Staphylococcus*, therefore further biochemical testing is required for identification.
3. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium
4. The surface of the medium should be dry when inoculated.

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**Physical/Chemical control**

Color : Red pH: 7.20-7.60

Cultural Response

Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Microbiological activity

Organisms	Inoculum CFU/ml	Growth
Staphylococcus aureus ATCC 25923	50-100	Good growth, yellow colonies
Staphylococcus epidermidis ATCC 12228	50-100	Good growth, red colonies
Escherichia coli ATCC 25922	$\geq 10^3$	inhibited

Storage and Shelf Life

Store between 2-8°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 sample must be decontaminated and disposed of in accordance with current laboratory techniques.

Reference

1. Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Tenover F. C., (Ed.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C.
2. Koch P. K., 1942, Zentralbl. Bakteriol. Parasitenkd. Abt. I Orig.149:122.
3. Chapman G. H., 1945, J. Bacteriol., 50:201-2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
4. 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.