 Mannitol Salt Agar is preferred for the isolation and identification of Staphylococcus species.

**Mannitol Salt Agar**

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| REF: V.1/MS01.100.0100 100 gram REF: V.1/MS01.250.0250 250 gram |  REF: V.1/MS01.500.0500 500 gram  |

# CLINICAL SIGNIFICANCE

# Staphylococci are widespread in nature, although they are mainly found on the skin, skin glands and mucous membranes of mammals and birds. The coagulase-positive species i.e. Staphylococcus aureus is well documented as a human opportunistic pathogen. The ability to clot plasma continues to be the most widely used and accepted criterion for the identification of pathogenic staphylococci associated with acute infections. Staphylococci have the unique ability of growing on a high salt containing media. Isolation of coagulase-positive staphylococci on Phenol Red Mannitol Agar supplemented with 7.5%NaCl was studied by Chapman. The resulting Mannitol Salt Agar Base is recommended for the isolation of coagulase-positive staphylococci from cosmetics, milk, food and other specimens. METHOD PRINCIPLE

# The medium contains peptone which makes it very nutritious as they provide carbon, nitrogen compounds, long chain amino acids, vitamins and other essential growth factors and trace nutrients. Many other bacteria except Staphylococci are inhibited by 7.5%sodium chloride. 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. Coagulase-negative strains of S.aureus are usually mannitol non-fermenters and therefore produce pink to red colonies surrounded by red-purple zones. Presumptive coagulase-positive yellow colonies of S.aureus should be confirmed by performing the coagulase test [tube or slide]. Lipase activity of S.aureus can be detected by supplementing the medium with egg yolk emulsion.

# MEDIA COMPOSITION

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| --- | --- |
| **Item**  | **Formula in g/L**  |
| PeptoneTryptoneBeef extractSodium chlorideD-MannitolPhenol redAgar  | 55175100.02515 |

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## Final pH 7.3 ± 0.2 at 25°C

# PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person.

Good Laboratories practices using appropriate precautions should be followed in:

* Wearing personnel protective equipment (overall, gloves, glasses,..).
* Do not pipette by mouth.
* In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries, seek medical advice immediately.
* Handle specimens and inoculated culture bottles as though capable of transmitting infectious agents. All inoculated culture bottles, specimen collection needles, and blood drawing devices should be decontaminated according to country requirement for waste disposal.

S56: dispose of this material and its container at hazardous or special waste collection point.

S57: use appropriate container to avoid environmental contamination.

S61: avoid release in environment.

For further information, refer to the Mannitol Salt Agar material safety data sheet.

# MEDIA STORAGE AND STABILITY

**Lab.Vie**. Mannitol Salt Agar should be stored between 10-30°C in a firmly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to avoid lump development due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in a dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

**N.B:** This product contains 7.5% Sodium chloride as one of its ingredients. On repeated exposure to air and absorption moisture sodium chloride has tendency to form lumps, therefore we strongly recommend storage in tightly closed containers in dry place away from bright light

##  PROCEDURE

## Dissolve 111.1 grams in 1 liter of distilled water.

## Adjust pH to 7.4 ± 0.2 at 25°C.

## Mix well and dissolve by heating.

## Boil for one minute until complete dissolution. Sterilize in autoclave at 121°C for 15 minutes.

## Cool to 45-50°C, mix well and dispense into plates

## Deterioration

**Lab.Vie**. Mannitol Salt Agar is Light yellow to pink colored granular medium. If there are any physical changes, discard the medium. Media should not be used if there are any signs of deterioration (shrinking, cracking, or discoloration), and contaminations.

**SPECIMEN COLLECTION AND PRESERVATION**

# For clinical samples follow appropriate techniques for handling specimens as per established guidelines (11,12). For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (9,10,13). After use, contaminated materials must be sterilized by autoclaving before discarding.

# TYPE OF SPECIMEN

# Pharmaceutical samples

# EQUIPMENT REQUIRED NOT PROVIDED

# Sterile cups

# Sterile plates

# Incubator

# Autoclave

# QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control values are found outside the defined range, check the system performance. If control still out of range please contact the technical support.

# PERFORMANCE CHARACTERISTICS

The following organisms are used by us as part of the quality assurance of the product. The total inoculum challenge for each test organism per bottle is 10 to 50 colony forming units (CFU’s).

|  |  |  |
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| **Microorganism**  | **Growth**  | **Colony Color**  |
| *Staphylococcus aureus subsp. aureus ATCC 6538* | Good-Luxuriant  | yellow/white colonies surrounded by yellow zone |
| *Staphylococcus aureus subsp. aureus ATCC 25923* | Good-Luxuriant  | yellow/white colonies surrounded by yellow zone |
| *Staphylococcus epidermidis ATCC 12228* | Good-Luxuriant  | Red  |
| *Staphylococcus epidermidis ATCC 14990* | Good-Luxuriant  | Red  |
| *Escherichia coli ATCC 25922* | inhibited | - |
| *Escherichia coli ATCC 8739* | Inhibited  | -  |

# REFERENCES

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3.Silverton R. E. and Anderson M. J., 1961, Handbook of Medical Laboratory Formulae, Butterworths, London

4.Chapman G. H., 1945, J. Bacteriol., 50:201.

5. American Public Health Association, 1966, Recommended Methods for the Microbiological Examination of Foods, 2nd Ed, APHA, New York. 6.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.

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| **SYMBOLS IN PRODUCT LABELLING**  |
|   IVD For in-vitro diagnostic use  |   Number of <n> test in the pack  |
|  LOT Batch Code/Lot number  | A black and white triangle with a exclamation mark  Description automatically generated Caution  |
|  REF Catalogue Number  | Do not use if package is damaged   |
|   Temperature Limitation   Expiration Date   Manufactured by  |  Consult Instruction for use      |

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