MANNITOL SALT AGAR

INTENDED USE
Remel Mannitol Salt Agar is a solid medium recommended for use in qualitative procedures for selective and differential isolation of staphylococci.

SUMMARY AND EXPLANATION
In 1942, Koch reported the use of 7.5% sodium chloride as a selective agent for the isolation of staphylococci.[1] Chapman confirmed the results of Koch and suggested the addition of 7.5% sodium chloride to phenol red mannitol agar.[2] Most strains of coagulase-positive staphylococci grow on Mannitol Salt Agar, producing yellow zones as a result of mannitol fermentation. Coagulase-negative strains of staphylococci produce small colonies with red-colored zones in the surrounding medium.

PRINCIPLE
Casein and meat peptones supply nitrogen, amino acids, and peptides necessary for bacterial growth. Sodium chloride in a concentration of 7.5% is a selective agent which inhibits many bacteria other than staphylococci. Phenol red is a pH indicator which causes a color change in the medium from red-orange to yellow when acid is produced. Staphylococci colonies that ferment mannitol will be surrounded by a yellow zone, while those that do not ferment mannitol will have a red zone.

REAGENTS (CLASSICAL FORMULA)*

Sodium Chloride	75.0 g	Beef Extract	1.0 g
D-Mannitol	10.0 g	Phenol Red	25.0 mg
Casein Peptone	5.0 g	Agar	15.0 g
Meat Peptone	5.0 g	Demineralized Water	1000.0 ml

pH 7.4 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PROCEDURE
1. Inoculate and streak the specimen as soon as possible after it is received in the laboratory.
2. If material is being cultured directly from a swab, roll the swab over a small area of the agar surface and streak for isolation.
3. Incubate the plate in ambient air at 33-37°C for 24-48 hours.
4. Examine plate for typical colony morphology and color change.

QUALITY CONTROL
All lot numbers of Mannitol Salt Agar have been tested using the following quality control organisms and have been found to be acceptable. This quality control testing meets or exceeds CLSI standards.[3] Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, patient results should not be reported.

CONTROL	INCUBATION	RESULTS
**Staphylococcus aureus* ATCC® 25923	Ambient, 18-24 h @ 33-37°C	Growth, colonies with yellow zones
**Proteus mirabilis* ATCC® 12453	Ambient, 18-24 h @ 33-37°C	Inhibited swarming
**Staphylococcus epidermidis* ATCC® 12228	Ambient, 18-24 h @ 33-37°C	Inhibition (partial), colonies with red zones

*CLSI recommended organism

BIBLIOGRAPHY

1. Koch, F.D. 1942. Zentr. Bakt. Labt. Orig. 149:122.
2. Chapman, G.H. 1945. J. Bacteriol. 50:201.
3. Clinical and Laboratory Standards Institute (CLSI). 2004. Quality Control for Commercially Prepared Microbiological Culture Media; Approved Standard, 3rd ed. M22-A3. CLSI, Wayne, PA.

Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, specimen collection, storage and transportation, materials required, quality control, and limitations.

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