Technical Data Sheet

Mannitol Salt Agar – LI

Ordering number: 1.46023.0020 / 1.46023.0120

Mannitol Salt Agar LI in 90 mm settle plates is a modified version of the selective agar proposed by Chapman (1945) for the isolation and presumptive identification of *Staphylococcus aureus* in non-sterile pharmaceuticals and food.

Ten settle plates each with a diameter of 90 mm are single-bagged in transparent, hydrogen peroxide impermeable sleeves (non-irradiated). The sleeves consist of polypropylene with a barrier of PE-EVOH-PE.

This medium complies with the specifications given by the harmonized methods of EP, USP, JP for Microbial Examination of Non-sterile Products: Tests for Specified Microorganisms.

Mode of Action

The composition of Mannitol Salt Agar supports the growth of *Staphylococcus aureus* whereas many other microorganisms are inhibited by the high salt content of 7.5 %. Some halophilic Enteroccci and Vibriones are able to grow on Mannitol Salt Agar.

In contrast to the most other staphylococci *S. aureus* is able to build acids from mannitol. Therefore, they build up yellow colonies with yellow zones. *S. capitis*, *S. simulans*, *S. carnosus*, *S. scuri*, *S. lentus*, *S. gallinarum* are also mannitol positive.

Typical Composition

Pancreatic Digest of Casein	5 g/l
Peptic Digest of Animal Tissue	5 g/l
Beef Extract	1 g/l
D-Mannitol	10 g/l
NaCl	75 g/l
Phenol Red	25 mg/l
Agar	15 g/l

The appearance of the medium is clear and pink-red. The pH value is in the range of 7.2-7.6. The medium can be adjusted and/or supplemented according to the performance criteria required.

Application and Interpretation

Each plate is provided with a label including a data matrix code for paperless plate identification. The code consists of a two-dimensional 20-digit serial number, which harbors the following information:

Digits 1-3: here code 797 (corresponds to article 146023); digits 4-9: lot number; digits 10-14: batch specific individual number; digits 15-20: expiration date (YY/MM/DD).

Please check each agar plate before using it on sterility and pay attention to aseptic handling in order to avoid false positive results.

According to the recommendations of the current EP and USP Mannitol Salt Agar is incubated for 18-72 hours at 30-35 ℃.

The possible presence of *S. aureus* is indicated by the growth of yellow/white colonies surrounded by a yellow zone. This is confirmed by identification tests.

The product complies with the test if colonies of the types described are not present or if the confirmatory identification tests are negative.

Possibilities for further identification:

If enterococci have been grown on the medium they can be separated by the detection of catalase and pyrase. Enterococci show a negative reaction for catalase and a positive reaction for pyrase while staphylococci show the opposite results.

Suspect colonies can subcultured on a medium with low salt concentration (e.g. article number 146004) and then be tested for coagulase, e.g. using Rabbit Plasma Fibrinogen Agar (EN ISO 6888-2).

Furthermore the presence of Thermonuclease may be tested with e.g. DNase Test Agar (article number 110449). The analysis of the clumping factor may be performed using immunological tests systems like latex tests.

Storage and Shelf Life

The product can be used for sampling until the expiry date if stored upright, protected from light and properly sealed at +15 ℃ to +25 ℃.

Condensation can be prevented by avoiding quick temperature shifts and mechanical stress.

The testing procedures as described on the CoA can be started up to the expiry date printed on the label.

Disposal

Please mind the respective regulations for the disposal of used culture medium (e.g. autoclave for 20 min at 121 ℃, disinfect, incinerate etc.).

Quality Control

Control Strains	ATCC #	Inoculum CFU	Incubation	Expected Results
Staphylococcus aureus	6538	10-100	16-18 h at 30-35 ℃	50-200 %
			18-24 h at 30-35 ℃	good growth; yellow colonies with yellow zones
Escherichia coli	8739	100-1000	72-76 h at 30-35 ℃	No growth

Please refer to the actual batch related Certificate of Analysis.

Literature

Chapman, G.H. (1945): The significance of sodium chloride in studies of *Staphylococci*. J. Bact. **50**: 201-203.

EN ISO 6888-2 (1999) + A1 (2003): Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) – Part 2: Technique using rabbit plasma fibrinogen agar medium.

European Directorate for the Quality of Medicines and Healthcare. (2014): The European Pharmacopoeia. 8th Ed. Chapter 2.6.13 Microbiological examination of non-sterile products: Test for specified products. Strasbourg, France.

Japanese Ministry of Health, Labour and Welfare. (2011): The Japanese Pharmacopoeia. 16th Ed. Chapter 4.05 Microbial Limit Test II. Microbiological examination of non-sterile products: Test for specified products. Japanese Ministry of Health, Labour and Welfare. Tokyo, Japan.

United States Pharmacopoeia 38 NF 33 (2015): <62> Microbiological examination of non-sterile products: Tests for specified microorganisms.

Ordering Information

Product	Cat. No.	Pack size	Other pack sizes available
Mannitol Salt Agar – LI	1.46023.0020	20 x 90 mm	120 x 90 mm
Tryptic Soy Agar – LI	1.46004.0020	20 x 90 mm	120 x 90 mm
DNase Test Agar for microbiology	1.10449.0500	500 g	

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