

TM 784 - MANNITOL LYSINE AGAR

INTENDED USE

For selective isolation of Salmonellae other than *Salmonella* Typhi and *Salmonella* paratyphi A.

PRODUCT SUMMARY AND EXPLANATION

Human *Salmonella* infections are most commonly caused by ingestion of food, water or milk contaminated by human or animal excreta. One of the most important criteria in the identification of *Salmonella* species is the production of hydrogen sulphide. *Salmonella* Typhi and *Salmonella* Paratyphi A can be differentiated from the rest of the *Salmonella* due to their inability to form hydrogen sulphide.

Mannitol Lysine Agar, formulated as described by Inoue et al is used for the selective isolation of *Salmonella* species other than *Salmonella* Typhi and *Salmonella* Paratyphi A from different foods and faeces. Mannitol Lysine Agar may be used directly with the specimen or from an enrichment culture. Enrichment can be carried out in Modified Semisolid RV Medium. Mannitol Lysine Agar does not depend upon lactose fermentation and is therefore recommended for investigating lactose fermenting Salmonellae like *Salmonella* Arizonae. Further tests should be carried out for confirming *Salmonella* species.

Mannitol Lysine Medium should be used in conjunction with Brilliant Green Agar, Modified or Bismuth Sulphite Agar. Mannitol Lysine Medium can be directly inoculated with the specimen or the specimen can be first enriched in Modified Semisolid RV Medium Base. Atypical *Salmonella* will form a characteristic bulls eye due to less H₂S production, which gets concentrated in the centre of the colony. *Salmonella* colonies will form purple black colonies. Presumptive *Salmonella* should be confirmed by biochemical tests.

COMPOSITION

Ingredients	Gms / Ltr
Peptone	10.000
Yeast extract	5.000
Beef extract	2.000
Sodium chloride	4.000
Mannitol	3.000
L-Lysine hydrochloride	5.000
Sodium thiosulphate	4.000
Ferric ammonium citrate	1.000
Brilliant green	0.0125
Crystal violet	0.010
Agar	15.000

PRINCIPLE

Peptone, Beef extract, yeast extract provides essential nutrients for the growth of *Salmonella*. Mannitol is the fermentable carbohydrate in the medium while L-lysine is the amino acid. *Salmonellae* grow as large purple colony with black center because of H₂S production. Mannitol is fermented by organisms and the resulting acid stimulates lysine decarboxylation. This elevates the pH due to production of amines and promotes blackening. Sodium thiosulphate and ferric ammonium citrate help in H₂S production. Atypical *Salmonella* strains do not produce H₂S and form grey colonies. Brilliant green dye in the medium inhibits gram-positive and majority of gram-negative organisms.

INSTRUCTION FOR USE



- Dissolve 49.02 grams in 1000 ml purified/distilled water.
- Heat to boiling to dissolve the medium completely. Do not autoclave.
- Cool to 45-50°C. Mix well and pour into sterile Petri plates.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Light yellow to greenish yellow homogeneous free flowing powder.

Appearance of prepared medium : Yellow with purple coloured tinge clear to slightly opalescent gel forms in Petri plates.

pH (at 25°C) : 6.8±0.2

INTERPRETATION

Cultural characteristics observed after an incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Colour of colony	Incubation Temperature	Incubation Period
<i>Escherichia coli</i>	25922	$\geq 10^3$	Inhibited	0%	-	35-37°C	18-48 Hours
<i>Salmonella</i> Paratyphi B	8759	50-100	Luxuriant	≥ 50 %	Purple with black center	35-37°C	18-48 Hours
<i>Salmonella</i> Typhi	6539	50-100	None-poor	0-10 %	Colourless with purple tinge, may have black centers	35-37°C	18-48 Hours
<i>Salmonella</i> Typhimurium	14028	50-100	Luxuriant	≥ 50 %	Purple with black center	35-37°C	18-48 Hours
<i>Salmonella</i> Enteritidis	13076	50-100	Luxuriant	≥ 50 %	Purple with black center	35-37°C	18-48 Hours
<i>Staphylococcus aureus</i> subsp. <i>aureus</i>	25923	$\geq 10^3$	Inhibited	0%	-	35-37°C	18-48 Hours

PACKAGING:

In pack size of 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 10-25°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.















Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

1. Aspinall S. T., Hindle M. A. and Hutchins on D. N., 1992, Eur. J. Clin. Microbiol. Inf. Dis., 11:936.
2. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
3. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015)
4. Manual of Clinical Microbiology, 11th Edition. Vol. 1.
5. Koneman E. W., Allen S. D., Janda W. M., Schreckenberger P. C., Winn W. C. Jr., 1992, Colour Atlas and Textbook of Diagnostic Microbiology, 4th Ed., J. B. Lippincott

 GMP Good Manufacturing Practices Certified	 IVD For In Vitro Diagnostic Use	 QTY. Quantity	 LOT/ B. NO. Lot / Batch Number	 REF Catalogue Number	 Manufacturer
 Temperature Unit	 EC REP Authorized Representative <small>MedNet GmbH Buckstrasse 10, 48163 Münster, Germany</small>	 European Conformity	 QR Code	 Consults Instructions for Use	 Best Before

NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**
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