TM 769 – LYSINE ARGININE IRON AGAR (LAI Agar)

INTENDED USE

For isolation and presumptive identification of *Yersinia* species from milk and milk products.

PRODUCT SUMMARY AND EXPLANATION

Yersinia enterocolitica has been isolated from many kinds of clinical and non-clinical specimens and is also reported to be an increasingly significant enteric pathogen. The organism is transmitted by ingestion of contaminated food (often milk and pork) and water, probably by the fecal-oral route, and perhaps by contact with infected animals. *Yersinia* species are responsible for disease syndromes ranging from gastroenteritis to plague. Some *Yersinia* species have been implicated in human disease with a variety of clinical syndromes.

Lysine Arginine Iron Agar is formulated as recommended by APHA for isolation and identification of *Yersinia* from milk and milk products. Lysine Arginine Iron Agar Medium is based on the ability of bacteria to decarboxylate lysine, arginine and produce H_2S.

COMPOSITION

Ingredients	Gms / Ltr
Peptic digest of animal tissue	5.000
Yeast extract	3.000
L-Arginine	10.000
L-Lysine	10.000
Glucose	1.000
Ferric ammonium citrate	0.500
Sodium thiosulphate	0.040
Bromocresol purple	0.020
Agar	15.000

PRINCIPLE

This medium consists of Peptic digest of animal tissue and yeast extract which provide the necessary nitrogenous nutrients and vitamin B complex to the organisms. Ferric ammonium citrate and sodium thiosulphate are the indicators for H_2S production. This medium contains two amino acids L-arginine and L-lysine. The organisms which do not decarboxylate L-lysine but ferment glucose, gives an alkaline slant and an acid butt (yellow colour, as bromocresol purple is the pH indicator).

The sample suspected to contain *Yersinia* can be inoculated on MacConkey Agar rather than directly streaking on Lysine Arginine Iron Agar. Inoculate the suspected Yersinia colony from MacConkey Agar on Lysine Arginine Iron Agar and incubate at 22-26°C for Upto 48 hours. Organisms that give an alkaline slant, acidic butt, no gas and no hydrogen sulphide (H_2S) production on Lysine Arginine Iron Agar and are urease positive, are considered to be presumptive *Yersinia*.

INSTRUCTION FOR USE

- Dissolve 44.56 grams in 1000 ml purified/distilled water.
- Heat to boiling to dissolve the medium completely.
- Dispense in 5 ml amount into screw-capped test tubes and sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.
- Cool the tubed medium to give slants and butts.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Cream to yellow homogeneous free flowing powder.

Appearance of prepared medium : Purple coloured, clear to slightly opalescent gel forms in tubes as slants with a butt.

pH (at 25°C) : 6.8 ± 0.2

INTERPRETATION

Cultural characteristics observed after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Slant	Butt	H_2S	Gas	Incubation Temperature	Incubation Period
Klebsiella pneumoniae	13883	50-100	Luxuriant	Alkaline reaction purple colour	Acidic reaction yellow colour	Negative reaction	Positive reaction	25-30°C	24-48 Hours
Yersinia enterocolitica	27729	50-100	Luxuriant	Alkaline reaction purple colour	Acidic reaction yellow colour	Negative reaction	Negative reaction	25-30°C	24-48 Hours

PACKAGING:

In pack size of 100 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°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.

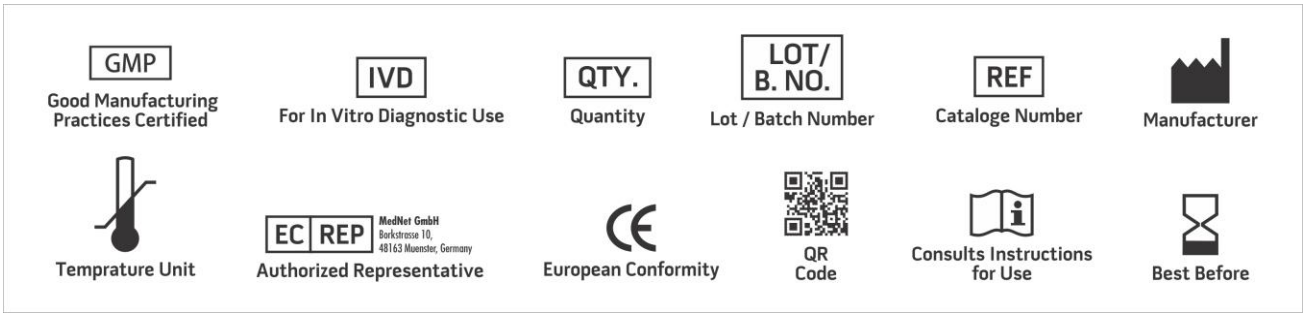
Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

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

REFERENCES

1. Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Yolken R. H., (Eds.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C.
2. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.
3. FDA Bacteriological Analytical Manual, 2005, 18th Ed., AOAC, Washington, D. C.
4. Atlas R. M., 2004, Handbook of Microbiological Media, Lawrence C. Parks (Ed.), 3rd Edition, CRC Press.



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

***For Lab Use Only**

Revision: 08 Nov., 2019