



Lysine Arginine Iron (LAI) Agar

M1230

Lysine Arginine Iron Agar is used for the isolation and presumptive identification of *Yersinia* species from milk and milk products.

Composition**

Ingredients	Gms / Litre
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
Final pH (at 25°C)	6.8±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 44.56 grams in 1000 ml 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 lbs pressure (121°C) for 15 minutes. Cool the tubed medium to give slants and butts

Principle And Interpretation

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 (1). *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 (2).

Lysine Arginine Iron Agar is formulated as recommended by APHA (3) 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 H₂S (4).

Peptic digest of animal tissue and yeast extract provide the necessary nitrogenous nutrients and vitamin B complex to the organisms. Ferric ammonium citrate and sodium thiosulphate are the indicators for H₂S 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 (M081) rather than directly streaking on Lysine Arginine Iron Agar. Inoculate the suspected *Yersinia* colony from MacConkey Agar (M081) 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 (H₂S) production on Lysine Arginine Iron Agar and are urease positive, are considered to be presumptive *Yersinia* (3).

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Purple coloured, clear to slightly opalescent gel forms in tubes as slants with a butt

Reaction

Reaction of 4.45% w/v aqueous solution at 25°C. pH : 6.8±0.2

pH

6.60-7.00

Cultural Response

M1230: Cultural characteristics observed after an incubation at 25-30°C for 24- 48 hours.

Organism	Inoculum (CFU)	Growth	Slant	Butt	H2S	Gas
Cultural Response <i>Klebsiella pneumoniae</i> ATCC 13883	50-100	luxuriant	alkaline reaction, purple yellow colour	acidic reaction, negative reaction	negative reaction	positive reaction
<i>Yersinia enterocolitica</i> ATCC 27729	50-100	luxuriant	alkaline reaction, purple yellow colour	acidic reaction, negative reaction	negative reaction	negative reaction

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label.

Reference

1. Murray P. R., Baron J. H., Pfaller M. A., Tenover J. C. and Tenover F. C., (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.

Revision : 2 / 2015

Disclaimer :

User must ensure suitability of the product(s) in their application prior to use. Products conform solely to the information contained in this and other related HiMedia™ publications. The information contained in this publication is based on our research and development work and is to the best of our knowledge true and accurate. HiMedia™ Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are not intended for human or animal or therapeutic use but for laboratory, diagnostic, research or further manufacturing use only, unless otherwise specified. Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.