

Lysine Iron Agar (LIA)

Medium used for the isolation and differentiation of *Enterobacteria* spp.

*Equally use with MFDS (MB-L1421K).

• CONTENTS (Liter)

| | |
|-------------------------|--------|
| Peptone | 5.0 g |
| Yeast Extract | 3.0 g |
| Dextrose | 1.0 g |
| L-Lysine HCl | 10.0 g |
| Ferric Ammonium Citrate | 0.5 g |
| Sodium Thiosulfate | 0.04 g |
| Bromocresol Purple | 0.02 g |
| Agar | 15.0 g |

Final pH = 6.7 ± 0.2 at 25°C.

• PROCEDURE

Suspend 34.56 G of powder in 1 L of distilled or deionized water. Heat to boiling until completely dissolved. Sterilize by autoclave at 121°C for 15 minutes. Cool to 45-50°C in water bath. Mix well. Dispense in tubes. Allow the medium to solidify in a slanted position that provides a short slant and a deep butt.

• INTERPRETATION

Lysine Iron Agar (LIA) is a medium used for the isolation and differentiation of *Enterobacteria*, especially *Salmonella*, based on lysine decarboxylation, lysine deamination and hydrogen sulfide (H₂ S) production. Peptone and yeast extract provide nitrogen, vitamins and minerals. Dextrose serves as a source of fermentable carbohydrate. Lysine is the substrate for use in detecting the enzymes, lysine decarboxylase and lysine deaminase. Ferric ammonium citrate and sodium thiosulfate are indicators of hydrogen sulfide production. Bromocresol purple, the pH indicator is changed to a yellow color at or below pH 5.2 and is purple at or above pH 6.8. Agar is the solidifying agent.

• TECHNIC

Inoculate the tube to stab the bottom and spreading the specimen on the slant surface using a sterile needle. Incubate plates at 35 ± 2°C for 18 - 24 hours. Refer the appropriated reference for recommended test procedure.

• QUALITY CONTROL FOR USE

Dehydrated medium

Appearance: free-flowing, homogeneous.

Color: beige.

Prepared medium

Appearance: slightly opalescent.

Color: purple.

Incubation conditions: 35 ± 2°C / 18 - 24 hours.

| Microorganism | ATCC | Growth | Characteristics | | H ₂ S |
|-------------------------------|-------|--------------|-----------------|--------|------------------|
| | | | Slant | Butt | |
| <i>Salmonella typhimurium</i> | 14028 | good | purple | purple | + |
| <i>Escherichia coli</i> | 25922 | good | purple | purple | - |
| <i>Klebsiella pneumoniae</i> | 27736 | good | purple | purple | - |
| <i>Proteus mirabilis</i> | 25933 | good | red | yellow | - |
| <i>Citrobacter freundii</i> | 8090 | none to poor | purple | yellow | + |

• STORE

The powder is very hygroscopic. Store the powder at room temperature, in a dry environment, in its original container tightly closed and use it before the expiry date on the label or until signs of deterioration or contamination are evident. Store prepared medium at 2-8°C.

• REFERENCES

1. Edwards, P.R., and M.A. Fife. 1961. Appl. Microbiol. 9 : 478.
2. MacFadding, J.F. 1985. Media for isolation-cultivation-identification maintenance of medical bacteria, vol. 1. Williams & Wilkins, Baltimore, MD.

• PACKAGE

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| Cat. No : MB-L1027 Lysine Iron Agar (LIA) | 500 G |
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