# Technical Information

## Lysine Decarboxylase MiVeg Broth

## Product Code :VM1376

**Application:-** Lysine Decarboxylase MiVeg Broth is used for distinguishing *Salmonella* serotype Arizonae from the Bethesda Ballerup group of *Enterobacteriaceae*.

## Composition

| Ingredients | Gms / Litre |
|---|---|
| MiVeg peptone | 5.0 |
| Yeast extract | 3.0 |
| Dextrose | 1.0 |
| L-Lysine hydrochloride | 5.0 |
| Bromo cresol purple | 0.02 |
| Final pH (at 25°C) | 6.8 ± 0.2 |

** Formula adjusted, standardized to suit performance parameters.

## Principle & Interpretation

Lysine Decarboxylase MiVeg Broth is prepared by using vegetable peptones instead of animal based peptone thereby making the medium BSE/TSE risks free. Lysine Decarboxylase MiVeg Broth is the modification of Lysine Decarboxylase Broth which was originally formulated by Falkow (1).

During the initial stages of incubation, glucose fermentation by the organisms, yields acid production resulting in a colour change of indicator to yellow. On further incubation, if L-Lysine is decarboxylated to cadaverine, there will be an alkaline reaction and indicator colour will then changes to purple. If colour remains yellow, the decarboxylase reaction is negative.

MiVeg peptone and yeast extract provides all the essential growth nutrients. Dextrose is the fermentable carbohydrate and bromo cresol purple is the pH indicator. Use light inocula and do not read the tests under 24 hours incubation as certain organisms require longer incubation time upto 4 days. To obtain accurate results, inoculated tubes must be protected from air. This is done to avoid false alkalinization at the surface of the medium, which could cause a decarboxylase negative bacteria to appear to be positive by overlaying the medium with sterile mineral oil as suggested by Ewing, Davis and Edwards (2).

## Methodology

Suspend 14 grams of powder media in 1000 ml distilled water. Mix thoroughly and heat to boiling to dissolve the medium completely. Dispense 5 ml amount into screw capped test tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

## Quality Control

**Physical Appearance**

Light yellow coloured, may have slightly greenish tinge, homogeneous, free flowing powder.

**Colour and Clarity of prepared medium**

Purple coloured, clear solution without any precipitate.

**Reaction**

Reaction of 1.4% w/v aqueous solution is pH 6.8 ± 0.2 at 25°C.

**pH Range**

6.6-7.0

**Cultural Response/Characteristics**

Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

| Organisms (ATCC) | Inoculum (CFU) | Lysine decarboxylation* |
|---|---|---|
| *Citrobacter freundii* (8090) | $10^2$-$10^3$ | @ |
| ****Enterobacter aerogenes** (13048) | $10^2$-$10^3$ | + |
| *Escherichia coli* (25922) | $10^2$-$10^3$ | ± |
| *#Klebsiella pneumoniae* (13883) | $10^2$-$10^3$ | + |
| *Proteus mirabilis* (25933) | $10^2$-$10^3$ | - |
| *Proteus vulgaris* (13315) | $10^2$-$10^3$ | - |
| *Salmonella* serotype Arizonae (13314) | $10^2$-$10^3$ | + |
| *Salmonella* serotype Paratyphi A (5006) | $10^2$-$10^3$ | - |
| *Salmonella* serotype Typhi (6539) | $10^2$-$10^3$ | + |
| *Serratia marcescens* (8100) | $10^2$-$10^3$ | + |
| *Shigella dysenteriae* (13313) | $10^2$-$10^3$ | - |

**Key :** + = positive reaction, purple colour
-- = negative reaction, yellow colour or no change
* = inoculated tubes overlaid with Sterile Mineral oil.
± = variable
@ = it is negative but shows false positivity
** = including the Bethesda-Ballerup group
# = including late lactose variants Alkalescens - Dispar

## Storage and Shelf Life

**Dried Media:** Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
**Prepared Media:** 2-8$^0$ in sealable plastic bags for 2-5 day.

## Further Reading

1. Falkow S., 1958, Am. J. Clin. Pathol., 29:598.
2. Ewing, W. H., B. R. Davis and P. R. Edwards, 1960. The decarboxylase reaction of Enterobacteriaceae and their value in taxonomy. Publ. Health Lab., 18: 77-83.

## Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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