TM 1010 – LYSINE LACTOSE BROTH

INTENDED USE

For determination of lysine decarboxylase activity of lactose non fermenting members of *Enterobacteriaceae* especially Salmonellae.

PRODUCT SUMMARY AND EXPLANATION

The family *Enterobacteriaceae* consists of gram-negative facultative anaerobic non-spore forming bacteria. These grow well on peptone meat extract media. However, several other factors have influenced the development of media for detection, isolation and enumeration of members of the *Enterobacteriaceae*. Decarboxylases are the enzymes that remove a molecule of CO_2 from an amino acid to form alkaline-reacting amines. Cadaverine is the amine degradation product of lysine. Many non-fermenters display only weak decarboxylase activity and many produce insufficient amines to convert the pH indicator system. This can be overcome by using only small quantities of substrates and heavy inoculum of pre-grown organisms in which a high concentration of enzymes has already accumulated. Overlaying the culture medium with 4 mm of petrolatum increases the sensitivity of detection. The initial conversion of the medium to a yellow colour, as acids accumulate from small amounts of glucose in the medium, is seen in case of the fermenters but not with the non-fermenters. The end point reactions are read comparing the strong alkaline purple colour reactions with the lighter bluish purple hue of the controls. Tubes should be incubated at 35°C for upto 5 days before interpreting the reactions as negative. Falkow formulated Lysine Broth (It is also named as Falkow Lysine Broth) for detection of lysine decarboxylase by means of a colour reaction in enteric bacilli.

COMPOSITION

Ingredients	Gms / Ltr
Pancreatic digest of gelatin	5.000
Yeast extract	3.000
Dextrose (Glucose)	1.000
L-Lysine	5.000
Lactose	10.000
Bromocresol purple	0.020

PRINCIPLE

This medium consists of Pancreatic digest of gelatin and yeast extract which provide nitrogenous and carbonaceous nutrients. Dextrose and lactose are the fermentable sugars. L-Lysine is the substrate that is decarboxylated due to decarboxylase enzyme activity. Bromocresol purple acts as the pH indicator. The enteric bacilli produce acid in an initial fermentation (lactose). Lactose non-fermenters produce acid from dextrose resulting in the formation of yellow colour. Subsequently L-Lysine is decarboxylated to form cadaverine resulting in an alkaline reaction and the broth reverts to purple colour.

INSTRUCTION FOR USE

- Dissolve 24.02 grams in 1000 ml purified/distilled water.
- Heat if necessary to dissolve the medium completely.
- Dispense in tubes in 5 ml amounts and sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Cream to light green homogeneous free flowing powder.
Appearance of prepared medium : Purple coloured clear solution without any precipitate.
pH (at 25°C) : 6.8 ± 0.2

INTERPRETATION

Cultural characteristics observed after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Colour of medium	Lactose Fermentation	Lysine decarboxylation	Incubation Temperature	Incubation Period
Escherichia coli	25922	50-100	Yellow	Positive reaction, yellow colour	Negative reaction	35-37°C	24 Hours
Proteus vulgaris	13315	50-100	Bluish green	Negative reaction	Delayed positive reaction bluish green	35-37°C	24 Hours
Salmonella Typhimurium	14028	50-100	Blue-purple	Negative reaction	Positive reaction, purple colour	35-37°C	24 Hours
Salmonella Enteritidis	13076	50-100	Blue-purple	Negative reaction	Positive reaction, purple colour	35-37°C	24 Hours
Serratia marcescens	8100	50-100	Blue-purple	Negative reaction	Positive reaction, purple colour	35-37°C	24 Hours

PACKAGING:

In pack size of 500 gm bottles.

STORAGE

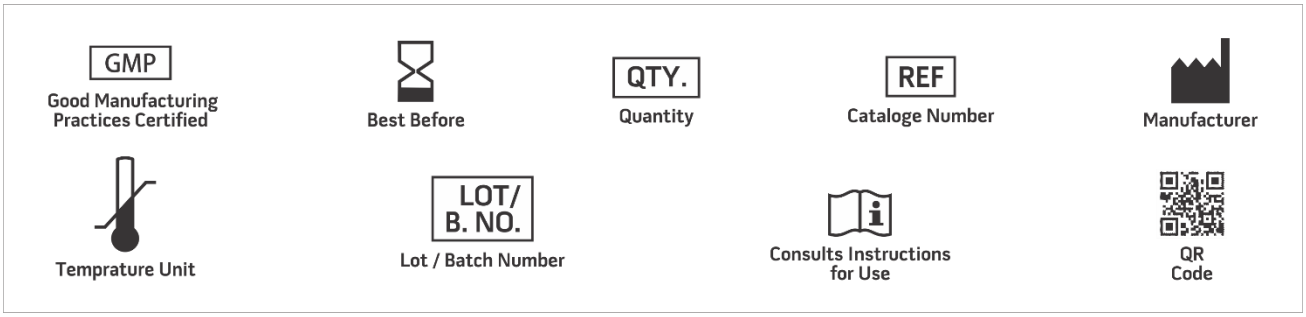
Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided 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. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), 2015, Standard Methods for the Examination of Water and Wastewater, 23rd ed., APHA, Washington, D.C.
2. Falkow A., 1958, J. Clin. Pathol., 29:598
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
4. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
5. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.



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

***For Lab Use Only**

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