



Fuchsin Lactose Broth

M079

Fuchsin Lactose Broth can be used for the determination of the coliform titre in the bacteriological examination of water and other materials.

Composition**

Ingredients	Gms / Litre
Peptone, special	5.000
Meat extract	3.000
Lactose	5.000
Basic fuchsin	0.013
Final pH (at 25°C)	6.8±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 13.01 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium completely. Dispense in tubes containing inverted Durhams tubes and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Caution: Basic fuchsin is a potential carcinogen and care should be taken to avoid inhalation of the powdered dye and contamination of the skin.

Principle And Interpretation

It has been agreed by most workers in water bacteriology that the plain Lactose Broth usually used for presumptive test is not altogether satisfactory, in that it gives many false positive tests. A number of modifications have been suggested to eliminate as far as possible, these false positive tests. In most of the modifications, dyes are used to restrain the growth of gram-positive organisms, which are cause of many of the false positive presumptive tests obtained in plain Lactose Broth. Addition of basic fuchsin in plain Lactose Broth has been advocated by Ritter (2).

Fuchsin Lactose Broth is a selective medium, which may be used in parallel with Lactose Broth (M026) in the control of water filtration plant operation (1). Basic fuchsin inhibits many gram-positive organisms, which are responsible for false positive results. However Fuchsin Lactose Broth may not be used as Lactose Broth with all waters, but could be used as a confirmatory medium. This was studied by McCrady while studying procedures for the detection of the presence of coliforms in water (3).

Acid production is observed by the formation of pink to red medium whereas non-fermenters will show no change in the colour of the medium.

Peptone special and meat extract in the medium provides nitrogen and other nutrients necessary to support bacterial growth. Basic fuchsin inhibits many gram-positive organisms, which are responsible for false positive results. Lactose is the fermentable carbohydrate.

Quality Control

Appearance

Light pink to purple homogeneous free flowing powder

Colour and Clarity of prepared medium

Light pink coloured, clear solution without any precipitate

Reaction

Reaction of 1.3% w/v aqueous solution at 25°C. pH : 6.8±0.2

pH

6.60-7.00

Cultural Response

M079: Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours.

Organism	Inoculum (CFU)	Growth	Acid Production	Gas
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Cultural Response

<i>Enterobacter aerogenes</i> ATCC 13048	50-100	luxuriant	positive reaction, pink- red colour	negative reaction
<i>Escherichia coli</i> ATCC 25922	50-100	luxuriant	positive reaction, pink- red colour	positive reaction
<i>Salmonella Enteritidis</i> ATCC 13076	50-100	luxuriant	negative reaction, no change	negative reaction
<i>Salmonella Typhimurium</i> ATCC 14028	50-100	luxuriant	negative reaction	negative reaction
<i>Staphylococcus aureus</i> ATCC 25923	$\geq 10^3$	inhibited		
<i>Enterococcus faecalis</i> ATCC 29212	$\geq 10^3$	inhibited		

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. Standard Methods for the Examination of Water and Sewage, 1946, 9th Ed., p. 226.
2. Ritter, 1932, J. Am. Water Works Assoc., 24:413.
3. McCrady, 1937, Am. J. Publ. Health, 27:1243.

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