

Deoxycholate Lactose Agar

M066

Deoxycholate Lactose Agar is a differential and slightly selective medium used for the isolation and enumeration of coliforms in water, wastewater, milk and dairy products.

Composition**

Ingredients	Gms / Litre
Peptone, special	10.000
Lactose	10.000
Sodium chloride	5.000
Sodium citrate	2.000
Sodium deoxycholate	0.500
Neutral red	0.030
Agar	15.000
Final pH (at 25°C)	7.1±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 42.53 grams in 1000 ml distilled water. Mix well and heat to boiling to dissolve the medium completely. The medium requires no autoclaving if it is to be used at once. If the medium is to be stored, it should be sterilized at 15 lbs pressure (121°C) for 15 minutes. AVOID OVERHEATING.

Principle And Interpretation

Deoxycholate Lactose Agar is a modification of Deoxycholate Agar as described by Leifson (1) and prepared according to formula specified in Standard Methods for Examination of Dairy Products (2) Water and Waste Water (3) and Food (4) for the detection of coliform bacilli. It differs from Deoxycholate Agar (M030) by its decreased concentration of sodium deoxycholate. Pour plate method is carried out using suitable dilutions. A thin layer of additional agar can be poured over the solidified pour plates to facilitate enumeration.

Deoxycholate Lactose Agar is selective against gram-positive organisms which are inhibited by optimum concentration of sodium deoxycholate and sodium citrate in the medium. It helps to differentiate between lactose fermenting and nonfermenting enteric bacilli. Lactose helps in differentiating enteric bacilli, as lactose fermenters produce red colonies while lactose non-fermenters produce colourless colonies. Coliform bacteria, if present form pink colonies on this medium. The degradation of lactose causes acidification of the medium surrounding the relevant colonies and the pH indicator neutral red changes its colour to red. These colonies usually are also surrounded by a turbid zone of precipitated deoxycholic acid due to acidification of the medium. Sodium deoxycholate combines with neutral red in an acidic environment, causing the dye to go out of the solution with the subsequent precipitation of deoxycholate (1).

Quality Control

Appearance

Light yellow to pink homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Reddish orange coloured, clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 4.25% w/v aqueous solution at 25°C. pH : 7.1±0.2

pH

6.90-7.30

Cultural Response

M066: Cultural characteristics observed after an incubation at 35-37°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colour of colony
<i>Bacillus subtilis</i> ATCC 6633 $\geq 10^3$		inhibited	0%	
<i>Escherichia coli</i> ATCC 25922		good-luxuriant	$\geq 50\%$	pink w/bile precipitate
<i>Enterobacter aerogenes</i> ATCC 13048	50-100	good - luxuriant	$\geq 50\%$	pink
<i>Enterococcus faecalis</i> ATCC 29212	$\geq 10^3$	inhibited	0%	
<i>Salmonella Typhimurium</i> ATCC 14028	50-100	good-luxuriant	$\geq 50\%$	colourless

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.Leifson, 1935, J. Path. Bact., 40:581.
- 2.Richardson (Ed.), 1985, Standard Methods for the Examination of Dairy Products, 15th ed., APHA, Washington, D.C.
- 3.Greenberg A. E., Eaton A. D., Clesceri L. S., (Eds.), 1998, Standard Methods for the Examination of Water and Waste Water, 20th Ed., APHA, Washington, D.C.
- 4.Speck M. (Ed.), 1984, Compendium of Methods for the Microbiological Examination of Foods, 2nd ed., APHA, Washington, D.C.

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