



Modified Endo Agar Base

M1481

Modified Endo Agar Base is recommended for the detection of coliform bacteria in natural water i.e. in surface waters, underground waters etc where any kind of antibacterial treatment has not been carried out.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	10.000
Meat extract	8.600
Lactose	10.000
Sodium sulphite	1.200
Sodium chloride	5.000
Agar	12.000
Final pH (at 25°C)	7.5±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 46.8 grams in 990 ml distilled water. Add rehydrated contents of 1 vial of Basic Fuchsin (FD059A). Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Mix well before pouring into sterile Petri plates.

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

Endo (1) had first developed a culture medium for differentiation of lactose-fermenters and lactose non-fermenters that has been further developed as today's Endo Agar (2). Endo Agar media are used for microbiological examination of potable water and waste water, dairy products and food (3, 4, 5).

Sodium sulphite and basic fuchsin has inhibitory effect on gram-positive microorganisms. Lactose fermenting coliforms produce aldehyde and acid. The aldehyde in turn liberates fuchsin from the fuchsin-sulphite complex, imparting to a red colouration of colonies. With *Escherichia coli*, this reaction is very pronounced as the fuchsin crystallizes, exhibiting a permanent greenish metallic lustre (fuchsin lustre) to the colonies. Lactose negative and weak lactose positive *E. coli* do not show any fuchsin sheen. On exposure to oxygen, the plated culture medium gradually becomes red due to the oxidation of sulphite and can thus no longer be used.

A non-selective medium should also be streaked to increase the chance of recovery when the population of gram-negative organisms is low and also to provide an indication of other organisms present in the specimen.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.2% Agar gel

Colour and Clarity of prepared medium

After addition of Basic fuchsin, orangish pink coloured, clear to slightly opalescent gel with fine precipitate forms in Petri plates.

Reaction

Reaction of 4.68% w/v aqueous solution at 25°C. pH : 7.5±0.2

pH

7.30-7.70

Cultural Response

Cultural characteristics observed with added Basic fuchsin (FD059A), after an incubation at 35-37°C for 18-24 hours.

Cultural Response

Organism	Inoculum (CFU)	Growth	Recovery	Colour of Colony
Cultural Response <i>Enterobacter aerogenes</i> ATCC 13048	50-100	good-luxuriant	>=50%	pink
<i>Enterococcus faecalis</i> ATCC 29212	50-100	none-poor	<=10%	pink, small
<i>Escherichia coli</i> ATCC 25922	50-100	good-luxuriant	>=50%	pink to rose red with metallic sheen
<i>Klebsiella pneumoniae</i> ATCC 13883	50-100	good-luxuriant	>=50%	pink, mucoid
<i>Proteus vulgaris</i> ATCC 13315	50-100	good-luxuriant	>=50%	colourless to pale pink
<i>Pseudomonas aeruginosa</i> ATCC 27853	50-100	good-luxuriant	>=50%	colourless, irregular
<i>Salmonella Typhi</i> ATCC 6539	50-100	good-luxuriant	>=50%	colourless to pale pink
<i>Shigella sonnei</i> ATCC 25931	50-100	good-luxuriant	>=50%	colourless to pale pink
<i>Staphylococcus aureus</i> ATCC 25923	>=10 ³	inhibited	0%	

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. Endo S., 1904, Zentralbl. Bakteriol., Abt. I. Orig., 35:109.
2. Levin M. and Schoenlein H. W., 1930, A Compilation of Culture Media for the Cultivation of Microorganisms, Williams and Wilkins, Baltimore.
3. Greenberg A. E., Trussell R. R. and Clesceri L. S. (Eds.), 1998, Standard Methods for the Examination of Water and Wastewater, 20th Ed., APHA, Washington, D.C.
4. Richardson G. H. (Ed.), 1992, Standard Methods for the Examination of Dairy Products, 16th Ed., APHA, Washington, D.C.
5. Speck M. L. (Ed.), 1984, Compendium of Methods for the Microbiological Examination of Foods, 3rd Ed., APHA, Washington, D.C.

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